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JOURNAL OF FARM ECONOMICS

Vol. XXXIII

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No. 2

POLITICAL AND ADMINISTRATIVE GUIDE-LINES IN DEVELOPING PUBLIC AGRICULTURAL POLICIES

W. ROBERT PARKS
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IN BUILDING a public agricultural program, one of the basic considerations quite properly is economic soundness. But the criterion of economic soundness alone is, of course, not sufficient in constructing suitable public programs. Political and administrative theory also throws out guide-lines which cannot be overlooked if appropriate agricultural policy is to be developed and implemented.

From the viewpoint of the political scientist, government's agricultural policies and programs are to be appraised according to the extent to which their ends and objectives coincide with the larger and generally accepted ends and objectives of the modern democratic national state.¹ Bounded by the framework of these generally accepted values, agricultural programs must further meet the exacting test of effectiveness. From the political and administrative perspective can farm policies be successful in solving the problems they are created to solve? Will they achieve the ends for which

¹ It might be submitted that the broad, generally accepted ends of the modern democratic state include, first, the promotion of the national interest, and, secondly, the extension of the welfare of the individual citizen. The national interest comprehends: the nation's strength in its relationships with other national states; general economic prosperity; physical health and well-being of citizenry; and a vigorous democratic social and political structure.

The second broad objective, that of the promotion of the welfare of the individual citizen, has always been a prime goal in American democracy. Even in the heyday of laissez-faire, the state's chief end was to guarantee to individuals certain political rights and a sort of negative type of equality of opportunity. These were the safeguards which were to protect individual welfare. With the growth of the concept of the democratic service state, the rights of the individual have been translated into positive economic terms. One of the economic responsibilities which government has been increasingly assuming is that of guaranteeing or underwriting a minimum opportunity for citizens to obtain some minimum level of living. In appraising agricultural programs according to this guide, however, several limiting considerations which are also a part of this concept are to be kept in mind. First, the underwriting is to be an underwriting of an opportunity to achieve merely a minimum level of living. Secondly, the concept of minimum has within it the standard of an equitable distribution of the right to make a minimum level of living. Finally, the social acceptability of underwriting a level of living for any particular group must be measured in terms of the cost of such an underwriting to other groups in society, e.g., such social costs as the sacrifice of dietary levels or burdensome taxation.

they are designed? An agricultural program's effectiveness derives chiefly from (1) its organic relationship to the problems to which it is addressed; and (2) its social, political, and administrative feasibility.

I

A program's organic relationship to the problems it is designed to solve depends upon the correct diagnosis of causes and consequences of the problem, the determination of appropriate objectives, the selection of means which are capable of achieving such objectives and do not themselves create other equally serious problems. In establishing this organic relationship between program and problems, the approach used in program development must be pluralistic, pragmatic, and realistic.

Agricultural policy makers, if they are to develop effective farm programs, need to be pluralistic and pragmatic in their attitude. The complexity of agricultural problems, the complicated web of causes and relationships, the importance of such intangibles as psychological factors, customs, habits, and so on, preclude the solving of agricultural problems through any simple formula. Any single panacea, such as technological efficiency or return to the independence of subsistence practices, must be suspect.

The very difficulty and complexity of agricultural problems and the complex role which government is expected to play in agriculture put a limit upon the value of sheer rationality in the development of programs. Thus far, statistics (particularly in the social field), analyses of accumulated experience, and consequently, over-all understanding are too meager for students to set up any all-embracing doctrine—any one best plan—to the exclusion of the use of the pragmatic and empirical method of policy development. For example, there is no conclusive knowledge on the efficiency of the family-type farm in comparison with larger farming units. In fact, it has not yet been determined to everyone's satisfaction what a family-size farm is. Again, there are a variety of learned opinions on whether the economic mechanism of the market or administrative adjustment is the best means of solving problems of agricultural production and distribution. Therefore, in developing agricultural policies, it may often be soundest for policy makers to proceed in a sort of piecemeal fashion, prepared to let individual circumstances influence the nature of the lines of action to be planned in specific cases.

The approach to agricultural policy development must also be realistic in that it recognizes and faces all of the factors involved in the problem. Agricultural policies, if they are to be effective, cannot be based on a concept of economic behavior which ignores how men and institutions really act. For example, it cannot be blithely assumed that industry will absorb surplus population. Again, under the peacetime system of distribu-

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tion, there is a certain futility in bending all agricultural programs toward making agriculture more efficient. Realism, which views the totality of the agricultural problem and does not permit the free and unrestricted use of the escape mechanism of the city, may mean that complete consistency as between agricultural programs may sometimes have to be sacrificed.

Indeed, the consideration of all factors involved in a problem does not have to be defended on the sole basis of realism. Will the scientific method itself permit the discarding of political and social phenomena as determinants simply because tools for measuring and projecting their behavior have not yet been perfected? As Erven J. Long has suggested, actually a theory which does not entertain the political and social situation as a part of the problem is incomplete. Logical consistency only partially satisfies the requirement of meaningful theory. Relevance, completeness, and warrantability in empirical situations are also necessary conditions of meaningful theory. The social and political dimensions of a given problem are as much a part of the problem, from the standpoint of the theoretical requirements that must be met to formulate its solution, as are the physical and economic aspects of the problem. Policy plans based on a theory which does not recognize this fundamental fact are really incomplete, and, therefore, erroneous.

II

An agricultural program's effectiveness is also dependent upon its social, political, and administrative feasibility. A public policy must be socially feasible in terms of the codes of values, priorities, concepts of reasonableness and practicality, and habits of work of the citizens whom it is to affect. Such attitudes and habits may have as much to do with the total environment in which a program operates as do the tangible factors of soil, climate, and economic circumstances. Consideration must be given to the fact that a governmental program is vitally affected by the reactions and attitudes of the citizens involved in carrying out the program. Favorable farmer-citizen reaction is particularly essential in the effective carrying out of today's public agricultural programs, which require not mere passive citizen consent but positive citizen cooperation. The "sign-up," in which farmers pledge their cooperation in the various action programs, is a now familiar symbol of the need for active citizen consent.

Policy proposals must also be reasonably acceptable to those making the political decisions in the governmental policy formulating process. Agricultural policy proposals, even in periods of crisis, cannot depart too radically from established political thought patterns. Thus, students making policy suggestions must be practical and realistic in that they recognize that the job of the state is public action; and that, therefore, proposals

must be such that those making the political decisions will permit state action to be taken.

Not only is it necessary to bear in mind that the job of the state is public action, but it is also important to recognize that our constitutional working process, designed in a day when the end of the state was largely inaction, intentionally makes action difficult. The separation and dispersal of power between an executive and a bicameral legislature with its accompanying system of checks and balances were designed to multiply the opportunities for resisting action. To these major deterrents to action can be added others: certain obstacles to legislation growing out of the development of the committee system and parliamentary organization and procedure within Congress; the lack of party discipline and solidarity partly due to the geographical system of representation, which encourages representatives to give a priority to divergent narrow local interests as the price for being returned to Congress; the strategic position of pressure groups in blocking unwanted action.

The existence of these action deterrents does not mean that policy proposals should cater to the politically powerful, but it does make necessary a working understanding of the obstacle course that a policy proposal must run before it becomes law. The policy making system may make proposals for total remedial action politically unattainable. It also places a premium upon a Burkean conservatism, which does not offend the usable political and social tenets of our past. The foreign frill of the collective farm in the early Resettlement Administration-FSA program was instrumental in placing in political jeopardy its central goal of rural rehabilitation on an individual basis.

The problem of low-income farming provides a nice illustration of the need for a pluralistic, pragmatic, and realistic approach to agricultural program development. Here is an illuminating example of the need for the sort of realism which recognizes men's political and social thinking as a significant factor in the successful adoption and carrying out of a farm program. The two principal opposing propositions for dealing with the problem of rural poverty and insecurity bring into focus the dilemmas of our political economy. The first proposition is that the problem must be solved in the city. This is based on the theory that productive work can and must be found for poverty-stricken rural people outside of agriculture. The assumption seemingly is that full employment in the industrial sector can be achieved and that farm people can be guided into it.

The American people, however, are probably not ready to accept the amount of coercion and regimentation which would likely be necessary to maintain full peace-time employment. Nor are they willing to force industry to give the surplus of agricultural workers satisfactory and lasting jobs and to use the governmental coercions necessary to get masses of farm people to

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leave their rural homes. If the public is not ready to accept the regimentation required to move great masses of rural people to the city, yet, at the same time, it bases its agricultural policy on the assumption that the problem of rural poverty must be solved in the city, the result will be a depth of rural poverty and misery which, at the present level of social and political thought, Americans cannot accept either.

The opposing proposition is that cities cannot provide adequate jobs for these surplus millions, and that therefore the only practical answer is to improve their status on the land. But here again is a political dilemma. American acceptance of the "welfare state" is not nearly complete enough to support, in normal times, a public underwriting of a decent level of living for these disadvantaged groups in agriculture which are not politically activated. Thus, the policy maker in the field of low-income agriculture must be empirical, pluralistic, and politically and socially realistic in his approach. Logical consistency as among his policy proposals may necessarily have to be sacrificed. He may have to suggest a pluralistic, perhaps at points even inconsistent policy, which calls for improving the lot of the low-income farmers where they are and at the same time outlines methods for moving rural people into industry. Having no one complete economic answer, the policy framer may suggest an empirical moving forward along several avenues. In the interest of getting any program at all politically adopted and socially accepted, his policy proposal may have to be vulnerable to the charge of being only "half-a-loaf." For example, experience has demonstrated that the complete rehabilitation of low-income program clients, which raises them above others in the community who have been unassisted, may so offend the community's social thought pattern as to defeat the program's success.²

Administrative feasibility is closely tied in with and dependent upon social and political feasibility, but it also comprises something more. Agricultural policy must be such that the state has the administrative capacity—the knowledge, the resources, and the administrative organization and personnel—necessary for effectuating it. Governmental capacity comprehends and is made up of society's whole body of scientific, technological, and professional knowledge. It is always hemmed in by the limitations of this knowledge. A survey of effective governmental action today in fields in which government in the past was incapable of acting gives perception of the need for a broad base of scientific and technical knowledge before government is committed to new programs. Scientific information on such social and economic phenomena as population, prices, production, patterns of land use, tenancy, levels of living, costs of living and so on has grown rapidly. But the relative insufficiency of knowledge of these factors, particularly of their caus-

² See Edward C. Banfield, "Ten Years of the Farm Tenant Purchase Program," *this Journal* XXXI, August, 1949, particularly pages 474-476.

al interrelationships, must still be a limiting consideration in proposals for governmental action.

The second component of government's capacity to carry out a policy is the resources available to government for the job. The resources required may be money, equipment, and other materiel for transmission to cooperating farmers, or merely program personnel and office and travel facilities. Such program needs must be carefully projected, and the possibility and desirability of mobilizing sufficient resources be estimated, before government is committed to and made responsible for the successful attainment of a given objective.

Closely akin to material resources in the composition of government's capacity to act is its authority to execute a program. Sufficiency of authority has to be measured not only in terms of legal power, but also in terms of the sufficiency of both the geographical and functional area in which government has authority to act, and the adequacy of the sanctions available to it.

Finally, government's capacity to act effectively is dependent upon its ability to develop administrative organization, operating techniques, and procedures suitable for carrying out action through millions of farmers scattered over a nation-wide area. In the past 40 years the science of administration has so developed and refined the methods for organizing and operating large collective undertakings that, as Max Lerner puts it, "one might perhaps speak of an administrative revolution comparable in its own realm to the industrial."³ The functionalizing of activity, integration of authority, defining of lines of responsibility and control, development of fiscal management and budgetary procedures, development of staff and auxiliary agencies, use of committees to coordinate activity, creation of methods for the devolution of function and authority, and the growth of a permanent career service based upon merit were all important factors in making government competent to handle its new complex tasks.

Policy proposals, therefore, require examination in the light of the type of administration needed for their fulfillment. Is suitable administrative machinery already available or can it be created? How long will it take to establish effective machinery? Will political, institutional, and bureaucratic pressures permit the creation of adequate machinery? That is, can the job be assigned to the proper level of government? How can overlapping, duplicating, and conflicting effort be avoided? What are the lines of authority and responsibility needed for the effective handling of the job? Will adequately trained personnel be available for the job? Are the administrative techniques and mechanisms for the actual carrying out of the job at the local level sufficiently developed that a proposed program is feasible?

³ "Foundations of Public Management," Fritz Morstein-Marx, *Public Management in the New Democracy* (New York, 1940), p. 6.

III

The necessity for the development of policy which is socially, politically, and administratively feasible does not lessen the need for a continue and integrated policy formulating process which brings together into a more productive working relationship all of the scattered and isolated parts of the policy determining machinery of government. A pragmatic, pluralistic approach in solving public problems is not synonymous with an unrelated upshooting of a variety of special fragmentary policies. Yet our governmental machinery for policy development facilitates, at times even requires, specialized, unrelated, and fragmented policy development.

Policy is frequently atomized by the centrifugal force of a governmental system which vaguely divides responsibility for policy making among the executive, working through a highly specialized series of bureaucracies covering the various functional areas of government; and a bicameral Congress, working through miscellaneous committees, ill-disciplined, heterogeneous political party memberships, and highly organized special pressure groups, represented by a variety of individual Congressmen, all with the power to initiate their own brands of policy.

Such splintering of responsibility in and of itself makes for the setting up of a miscellany of special, unrelated, and at times cross-purpose policies. In addition, the fragmenting of responsibility tends to create jurisdictional jealousies, conflicts, and enervating frictions which sometimes prevent the selection of the most suitable policies available. The first need in policy formulating machinery, then, may well be the development of a means for bringing all of the segments of government concerned with policy making into a closer, more productive working relationship.

Perhaps the most serious danger in the atomization of responsibility for policy making is that it so isolates individual Congressmen, Congressional committees, and executive agencies that they are an easier prey to the pressures of the organized interests desiring special protection or assistance. Here lies one of the great dangers of a democratic service state which does not have a continue and integrated planning process. Such a state may well become little more than a hand-out state in which the public coffers become the spoils of the politically strongest groups in society. It is not necessary to spell out the threat to the general welfare in the rise of this new type of spoils system in a state whose activities so closely intertwine with the vital welfare of its citizens. Special interest tariffs, vast bounties of land to railroads, and hard money policies of nineteenth century laissez-faire government worked little hardship upon the citizen in comparison to the general havoc that unwise shifts in price, taxation, and social security policies of the present mid-century state could create.

The theory has frequently been advanced that balanced public policy can be developed through a sort of collective bargaining process among the in-

terest groups acting through individual Congressmen, Congressional committees, and the political parties. It is maintained that the pressure groups so counterbalance each other in the process of policy formulation that the sum total of their activities equals the public good. But this theory is essentially as naive as the laissez-faire belief that the sum total of the activities of economic men pursuing their best individual interests will add up to the public good.

Such a group bargaining process cannot likely fill the need for positive, broadly objective systematic planning in a state which has accepted large responsibilities for directing economic forces and managing industrial and social relations in a highly complex interdependent industrialized society. The pattern of pressure group organization is such that public policy resulting solely from the balancing of group strength could not be expected to bring a socially equitable distribution of the fruits of collective action; nor would it promote the broad national interest.

Generally made up of the more aggressive, the more economically and socially privileged segments of the larger group, the membership of a pressure organization typically is not a representative cross section of the larger group it purports to represent. In addition, socially important but unorganized sectors of society, such as the consumer, are not represented in the pattern of pressure politics.

In the internal development of pressure group policies, a sort of log-rolling rather than statesmanlike compromise often occurs between the conflicting interests within the group. Thus, the policies the pressure group presents to the outside world may be largely just a series of decisions giving each particular interest in the group what it wants in the way of government assistance or non-interference. For example, the Mid-West sector of the Farm Bureau let the South have its way in the fight against the Farm Security Administration, since its own interests were not greatly involved either way. Consequently the whole support of the Farm Bureau Federation was put behind the southern wing. Too frequently the most selfish pressures within the membership control total organization policy.

Usually, moreover, the orientation of pressure groups is toward their short term, narrowly gauged interests rather than toward either their own long term interests or the general advantage—which frequently actually coincides with their own long term interest. Whether a pressure organization can, in terms of its organizational strength, afford to be "right" is another question. To have greatest weight in influencing public policy, the organization must constantly seek to maintain and increase its membership. Membership growth, however, seems to derive from obtaining immediate gains for the group. The fact that there are rival organizations competing for membership tends to prevent an organized group from taking the long term or general view.

Thus, a policy determining process largely reflecting the bargaining strength of organized groups probably would not result in public policies which coincided either with the broad national interest or with the generally accepted democratic concepts of social equity. In the field of agriculture, for example, policy resulting from pressure group bargaining might well de-emphasize the national interest in the physical health and welfare of the citizenry. It is generally accepted that the nation has an interest in eliminating what Milo Perkins has called the "black plague of the twentieth century"—underconsumption. Even today perhaps one third of the population is suffering in varying degrees from malnutrition. Yet, if pressure politics alone should determine agricultural policy, it is doubtful if adequate weight would be given to questions of such vital concern to the national well-being as the following: Will proposed agricultural policies lead to the adequate production of the types of agricultural produce needed to give the total population an adequate nutritional diet? Or will they lead to cut-backs in production and the production of unneeded commodities whose markets are governmentally guaranteed? Are agricultural policies so designed to lead to a greater consumption of agricultural commodities, or will price policies be such that demand will be dried up and underconsumption be on the increase?

Nor will pressure politics alone give proper weight to the national interest in not permitting any large group of citizens to fall far below the national average in health and well-being. Yet it is in the national interest to raise the levels of living of certain disadvantaged rural groups, particularly those living in geographical pockets of rural poverty. Today the Jeffersonian analogy of cities being corruptions on the body politic might well be reversed. The growth of economically functionless human beings in certain rural areas is like the malignant growth of functionless cells in the human body. A society cannot be completely healthy which permits such growths. The fact that these areas are the great breeding ground of the nation's population and are producing and rearing a third of the nation's children makes it of even greater national interest that agricultural programs seek to rehabilitate and raise the level of living of these underprivileged people.

The antidote to unchecked, particularized policy development may be a government planning process which systematically incorporates an objectively over-all, long-range view. The Department of Agriculture has sometimes been justifiably accused of taking on the coloration of a special pleader for the agricultural interests. Nevertheless, in its professionalized bureaucracy it has the potential for a broad view of the needs of all sectors of the agricultural population, as well as the claims of the rest of society. For example, it has usually been the Department of Agriculture which has spearheaded the effort to assist low-income farming. Leadership for the drive to protect the consumer against food impurities also came out of the Department of Agriculture.

The need for utilizing the agricultural bureaucracy in policy formulation is fundamental. In its efforts to carry out existing laws, in its continuing research with the raw materials which create the problems of agriculture, the bureaucracy is in a position to visualize new policy needs and to spot the points at which old policies require revision. The "action" bureaucracy, however, is sometimes too close to particular segments of the agricultural picture to see its totality in true perspective. A part of this perspective might be gained by creating a planning group at the secretarial level which has the Secretary's strong support.⁴ This group would necessarily have close working contacts with the "action" bureaucracy, but would not be a part of it.

Such a planning nucleus could be enriched through a continuous fresh inflow of competent objectivity from outside "experts", students of the agricultural society and economy. These students might be brought into the planning group on a continuing consultative basis.⁵

The assertion of the need for developing a planning group which has within it the generalist view is not an argument for the creation of a master plan, the development of an all-inclusive single formula for resolving agricultural problems. It is not a plea for an all-or-none type of proposal for action. Despite the creation of over-all planning machinery, the realities of the pressure group and the political process would still be present. The influence of the organized groups in any final policy determination would still be so great that planners, if they wanted their proposals seriously considered, could not afford to disregard or dismiss their probable attitudes and reactions. Since government derives its power from the consent of the larger groupings from which they come, pressure groups cannot be eliminated from the political process. Nor is it probable that the limitations and dangers of pressure group politics can be removed by such negative devices as the regulation of lobbying.

Rather, the task is to find some way of canalizing and harnessing the energies of interest groupings so that they can be more socially useful in policy development. This suggests formally bringing them into the planning process perhaps on an advisory basis, giving the groups an opportunity to present their needs, problems, and attitudes in the early stages in the formulation of policy.⁶ It is the suggestion that agriculture's organized groups be

⁴ It was this lack of solid secretarial support after 1940 which contributed significantly to the failure of the Land Use Planning Program. Failing to get the cooperation of the powerful operating agencies, it could not obtain that "action" on its plans which might have given it stronger support in the counties.

The necessity of gearing agricultural planning machinery into a top-level, government-wide planning process is being recognized. However, the treatment of planning machinery at the presidential level, and its relationship to planning within the major departments, are beyond the scope of this article.

⁵ In speaking of a planning group, there is no thought of its having an exclusive franchise for developing agricultural policy. The centrifugal force of our constitutional political machinery would still provide maximum opportunities for all those who now originate and push policy proposals to continue to do so.

⁶ Despite the difficulties inherent in the undertaking, it is important that the unorganized sectors of the agricultural population also be given representation.

recalled to their most worthy historical role—that of the assimilator of new ideas and the promoter of needed governmental change.

Bringing group representation into a face-to-face continuing, organized working relationship with the generalist-minded planning group may produce a dual good. In the first place, it may serve as a means of reconciling groups to policy proposals before they hit the floor of Congress. The interchange of information, ideas, attitudes in a planning process may serve as a means of educating the group to the needs and problems of other groups. It may also serve to eliminate some of the sources of personal friction between group leaders and leaders in government, which has sometimes brought policy development to a stalemate.

Bringing the interest groups into the planning process may have the second important result of giving the generalist group a sense of *realpolitik*. The very factors which have given the generalists competent objectivity—the cloister of the academic life, insulation from the rough and tumble of the process of political decision, inexperience in translating policies into action in the counties—have also created in them a disregard for one of the chief policy needs of democratic government, that of political and social consent. Close working contact with group leaders may create a realization that political obstacles to the adoption of policy cannot be brushed aside as unscientific and therefore irrelevant. Such contacts may create a willingness to forego the intellectual pleasure of a master plan in the interest of accomplishing specific, practical results.

The good which might come from bringing leaders of farm groups into a policy planning process might apply equally to the inclusion in the planning group of representative Congressmen, bringing with them the attitudes of their branches of government and the views of the two political parties to the extent that these attitudes and views can be isolated and defined. In addition, giving Congressional representatives a partnership in the planning process might serve to develop a closer, more productive working relationship between Congress and the administrative department. It would serve as a reminder that, in the American political system, it is the expert who works for the politician, rather than vice versa.

Thus far, the need for a continue and integrated over-all planning process has been put largely in negative terms—the inability of pressure group politics to balance out in the interests of all groups as well as the general public. However, the policy needs of the modern state which no longer merely “holds the ring”, but actively engages in the direction and control of economic and social forces, can hardly be left to the immediacy of an on-the-spot, haphazard bargaining process. Someone, somewhere, somehow must go through the steps which make up the planning function. The first step in this process is research. This is the investigating, recording, analysing, and appraising of the physical, social, economic, socio-psychological, and political factors affecting agriculture. It is also the recording and an-

alysing of administrative experience and of the impact of public programs upon agriculture. Planning, however, has as its central characteristic that of long-range foresight. This involves first the collection of the best available information about the various alternatives for future, broad, usually long-range policies, and their possible results. In its final stage it entails the formulation of concrete plans for immediate, or relatively immediate action. It becomes a process which recommends definite program objectives, and suggests specific courses of action for pragmatic testing.

The coalescing of the policy initiating function in the executive branch of government during recent years has not been the result of the machinations of a power-hungry executive. Rather, it has been the response to the government's need for more positive planning in policy formulation. The executive has been stepping in to fill this policy vacuum. It is not enough to decry the dangers to the democratic process inherent in a prolonged international crisis situation in which unusual policy making power is turned over to the executive. The exigencies of the crisis seemingly do not permit the solution of refusing such power to the executive. In such a political dilemma, the solution may be another hybrid in government, a new working synthesis of executive and Congress, expert and layman, generalist and special pleader. It may be that a group composed of such divergent and conflicting psychologies, goals, and values cannot be geared together into a productive working relationship, but the need for such a synthesis still remains. If it could be achieved, the resulting policy proposals for agriculture might more nearly coincide with the national interest and the democratic conception of social equity, and more nearly meet the efficiency test deriving from political, social, and administrative feasibility.

LAND REFORM IN JAPAN*

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Introduction

POLITICAL and military developments in Asia during the past few years have caused the attention of the western world to be drawn more closely than ever before to this area and its ever multiplying problems of land and people. Discussions on measures for alleviation of these problems usually bring forth the conclusion, among others, that land reform is one of the most pressing needs. Perhaps the most thorough-going agricultural reform ever carried out through constitutional means has been accomplished in Japan since 1945. The article that follows has been prepared in the interest of bringing to the general reader an outline of some of the most pertinent facts about the accomplishments and limitations of this important program.

The Background

Having an area of 142,270 square miles, Japan is slightly smaller than the State of California. Only 16 percent of the total area of the country is arable. Approximately 50 percent of the total population of about 84 million people depends on agriculture for all or part of its income. Only nine percent of farm households cultivated more than five acres of land, and 67 percent cultivated less than two and one half acres. Before the Land Reform Program approximately 70 percent of the farmers rented all or part of the land they cultivated. Rents ranged from 50 to 70 percent of the annual crop. Widespread economic instability and social strife had resulted from this inequitable land tenure system. Repulsed in their demands for remedial legislation, farmers, during the decade preceding World War II, gave strong support to the military group which held out the promise of new lands and prosperity to be won through aggressive war. This course was thwarted by defeat and surrender. The tenant class in occupied Japan, with demands for relief from their intolerable situation still foremost in their minds, remained a fertile field for any extremist ideology promising a solution to their problems.

At the time the Occupation Force entered Japan, the nature of the country's agriculture was not unfamiliar to General MacArthur or to the members of his staff responsible for agricultural activities. Japanese land tenure and other agricultural problems had been under study for many months

* The author gratefully acknowledges the assistance of the Agriculture Division staff in the preparation of this article, particularly the section, *Land Prices Under the Reform*.

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before the Occupation began. Considerable research and background material had been prepared in Washington by various government agencies; and during the pre-surrender spring and summer of 1945 at the Civil Affairs staging area for the Occupation of Japan at the Presidio of Monterey, California, a unit of trained agriculturists had been at work full time studying Japanese agriculture and preparing, discussing, and revising tentative plans for agricultural programs that might need to be instituted by the Occupation Force upon its entry into the country.

SCAP¹ Action

In Japan during the fall of 1945, Occupation Force agriculturists continued their intensive study of agricultural conditions in the country, analysing current problems, bringing statistics up to date, and conferring with those considered capable of giving objective judgments, including some outstanding Japanese agricultural economists, natural scientists, government officials and others. The culmination of these efforts, together with those of the pre-Occupation period, was a now-famous memorandum issued by General MacArthur on December 9, 1945, to the Japanese Government directing it "to take measures to insure that those who till the soil of Japan shall have a more equal opportunity to enjoy the fruits of their labor." The memorandum outlined the elements of a broad agricultural reform, one of the important aspects being the land reform program.

Subsequent to the issuance of the memorandum, the SCAP staff entered into extended negotiations with Japanese Government and other interested agencies on the terms of the land reform. Legislation implementing the program finally was enacted by the Japanese National Diet and promulgated on October 21, 1946. The broad objectives of the reform were (1) transfer of land ownership to farmers actually cultivating the land, and (2) improvement of farm tenancy practices for those who continued to cultivate as tenants. The program emphasized private, individual ownership of the land. It differed from previous Japanese attempts at land reform in many respects, the most important of which was that it required compulsory sales by landlords, whereas the earlier reform attempts by the Japanese Government had omitted this important detail. Since, traditionally, the shortage of and demand for agricultural land in the country had caused land prices and rents to remain at much higher levels than was justified by the economic returns that could be expected from the soil, the ordinary tenant whose income principally was from his agricultural products had never entertained the thought of being able to purchase a farm of his own.

Administration of the Program

The program in each city, town, and village has been administered by a local land commission (11,322 for all Japan) elected by and from among

¹ Supreme Commander for the Allied Powers.

the farmers. Prefectural agricultural land commissions (also elected) coordinate and supervise the work of the local commission.² The Prefectural Commissions are under the general supervision of the Central (National) Agricultural Land Commission, of which the Minister of Agriculture and Forestry is Chairman.

With respect to the local land commissions, the ratio of tenants, owners, and owner-cultivators³ on each commission was originally established by law at five, three, and two respectively. Later, however, as the land transfer phase of the Reform progressed and the number of owner-cultivators increased, it became necessary to change representation on the commissions. Accordingly, just prior to the second general election for land commissioners held August 18, 1949, farmers were divided into three new categories (roughly describable as tenants, landlords, and owner-farmers).⁴ In each village, Categories I and II each elected two representatives, and Category III, six representatives to the village commission.

Lands Subject to the Reform

Agricultural lands subject to purchase under the land transfer program are: (1) lands owned by absentee landlords; (2) tenant-operated lands in excess of specified retention rates (which vary locally, but whose average must not exceed one cho⁵ in Kyushu, Shikoku, and Honshu, or four cho in Hokkaido); (3) owner-operated lands in excess of specified retention rates (which also vary locally but whose average must not exceed three cho in Kyushu, Shikoku, and Honshu, or 12 cho in Hokkaido), except those that can be reasonably operated by the farmer and his immediate family; (4) corporation-owned lands that do not contribute directly to the principal work of the corporation; and (5) lands capable of reclamation for agricultural use.

Persons Eligible to Acquire Land

Lands subject to transfer were purchased by the Government through the agency of the village land commissions for resale to eligible buyers. Tenants on the land as of November 23, 1945, other tenants and other per-

² A prefecture is a political entity in Japan occupying a position in many respects similar to that of a state in the United States.

³ The Japanese Ministry of Agriculture and Forestry generalizes these groups as follows:

- I. Tenant: a person engaging in cultivation who either owns no agricultural land or owns an amount equal to less than one third of that cultivated by him.
- II. Owner: a person who does not engage in cultivation of his land or whose owned lands exceed twice the amount cultivated by him.
- III. Owner-cultivator: a person who engages in cultivation and owns agricultural land but who does not fall into either Class I or II above.

⁴ Category I, those who cultivate leased lands exceeding two tan (Hokkaido, five tan); Category II, those who lease to others agricultural land exceeding two tan (Hokkaido, five tan); Category III, all those not included in Categories I and II. The category of a farmer who both leases to and leases from others is determined by the classification in which lies the greatest area of the land cultivated by him.

⁵ One cho = 2.45 acres.

sons who wished to cultivate the land had priority to purchase in the order named.

Contrary to the impression of many not completely familiar with the Land Reform, little movement of farmers resulted from the program. For the most part, tenants who were cultivating land continued to cultivate the same land and live in the same houses. They simply purchased the land they had been cultivating as tenants.

Land Prices under the Reform

Procedure to determine the official purchase price of land under the Land Reform Program was based on that used by the Japanese Government during World War II, when land prices were frozen at levels current in 1938. A "record rental value" had long been established for almost every piece of agricultural land in Japan. This rental value was an officially calculated figure (based originally on actual rentals) to be revised every 10 years and used for assessing taxes. Under wartime Japanese control (Temporary Control Ordinance for Pricing Agricultural Lands, No. 109, January 30, 1941) the price of land had been frozen at the September 1939 level, which was calculated to be an average of 33 times the 1938 rental for paddy land and 40 times the 1938 rental for upland. In 1946 under the Owner-Farmer Establishment Special Measures Law, the ceiling price for land was set at 40 times the 1938 rental value for paddy land and 48 times the 1938 rental value for upland. The purchase prices for all Japan accordingly, averaged Y760 per tan⁶ for paddy and Y448 per tan for upland⁷. At that time the purchase price ceiling, as set, was approximately equivalent to market price. The purchase price of each parcel was set by the appropriate city, town, or village agricultural land commission, which had limited discretion as to local price levels within the general requirement that ceiling prices could not exceed those stated above.

In the months and years following the establishment of the official land prices, serious postwar inflationary pressures⁸ gave rise to demands on the part of former landowners for substantial increases in these prices. The demands were not acceded to, however, since during the period of the initial transfer of land to tenants, a change of price would have been impractical. Resistance by each seller to early transfer of his land in the hope that he could obtain higher prices effectively would have stopped the transfer program. Further, those whose lands were purchased at an early date would

⁶ One tan = 0.25 acres.

⁷ In addition to prices so fixed for the land purchase, the owner received a subsidy on that portion of the area purchased which corresponded in size to his retention rate. This subsidy averaged Y220 per tan for paddy fields and Y130 per tan for upland fields.

⁸ Reflecting the depreciation in the value of the yen, the official occupation rate fell from Y15 to \$1 at the time basic land reform legislation was enacted, to Y360 to \$1 as of the current date (December 12, 1950); the official price to producers of brown rice rose from Y220 per bale (60 kg.) in November 1946 to Y1747 in November 1949.

have been unjustly discriminated against if later transfers were concluded at higher prices. Still another factor was the reluctance of the Japanese Government to add fuel to the inflationary fire by increasing the land prices.

Land purchased by the Japanese Government from landowners was paid for in 24-year bonds bearing 3.66 percent interest. Bonds were issued in denominations of Y1,000. Residual fractions of the purchase price for any particular tract of land were paid in cash by the government to the seller. New owners purchasing land from the government were authorized by law to pay all or part of the purchase price of the land at the time of purchase; the balance, if any, could be paid in 24 equal annual installments with interest at 3.2 percent. Payments for the land by the new owner, plus other expenses coincident with landownership, may not in any year exceed one third of the gross income from the land in that year. In the event of crop failure or low farm prices, the Government may reduce, defer, or cancel the annual payment.

Purchasers of land under the program were not permitted to use the land as collateral for loans during the amortization period without specific approval of the Government. Tenant-purchasers desiring to discontinue their purchase contracts during the amortization period or failing to use their land for agricultural purposes were required to sell it back to the Government on terms similar to those of the original contract. All future land transactions were made subject to approval by the agricultural land commissions.

Accomplishments under the Program

By July 2, 1950, the Japanese Government had acquired under the Land Reform Program 4,759,798 acres of cultivated land. Of the total amount acquired, 4,673,751 acres had been resold to new owners. The cultivated area operated by tenants thus has been reduced from an estimated 6.3 million acres (46 percent of total cultivated area) to approximately 1.63 million (11 percent of total cultivated area). As of July 1950 also, 899,760 acres of pasture land had been acquired by the government, of which 645,735 acres had been sold to new owners. In addition to cultivated and pasture land, 3,055,713 acres of land had been acquired as of July 2, 1950, for reclamation and future resale to owner-farmers as part of a long range program for increasing the total cultivated area of the country. By June 30, 1950, 750,739 acres of this land had been reclaimed by the government and sold to individuals, or sold to individuals for private reclamation.

During this initial phase of the Land Reform Program, approximately 30 million parcels of land were transferred. In order to transfer title legally, each parcel was first checked with the local tax office and thereafter with the local land registry office as to accuracy of boundaries and adequacy of title. A writ of transfer was then filed with the land registry office by the village land commission in the name of the prefectural governor. Formal ac-

ceptance of the writ by the registry office constitutes, in Japan, a legal registration of title. Since each parcel was transferred first to the Japanese Government and thereafter was re-transferred to the new purchaser, some 60 million entries in the official land registry books were involved. This gigantic task of registration was virtually complete by the deadline which had been set, March 31, 1950.

Although the Land Reform Program is dedicated primarily to creating owner-farmers, total elimination of farm tenancy was not considered feasible. A small reservoir of land subject to tenancy is essential to a program of maximum food production. Flexibility in the land tenure pattern must be preserved to prevent withdrawal of land from cultivation in instances where the owners become temporarily unable to cultivate for themselves. The Land Reform Program, therefore, also includes provisions to insure fair tenancy practices for those who remain as tenants. The most important of these provisions are: (1) cash payment of rents; (2) rent ceilings of 25 percent of the production from irrigated rice land and 15 percent from upland fields; and (3) rental contract cancellation or alteration subject to approval by the village land commission. A model lease contract form to be used by tenants and landlords as a guide in drawing up their own contracts has been widely distributed by the Japanese Government.

Costs of the Program

The total cost to the Japanese Government of administering the Land Reform Program was Y13,480,606,660 for the period September 1, 1946 through June 30, 1950.⁹ Of this amount, Y9,061,130,978 was spent for the support of the 11,322 local land commissions. Principal responsibility and credit for the success of this program accrue to these local land commissions.

Changes in the Program to Meet Long Term Requirements

With the initial task of reducing farm tenancy virtually completed, the Japanese Government promulgated Cabinet Order No. 288, September 11, 1950, under the authority of Imperial Ordinance No. 542, 1945. This order modifies the Land Reform Program to meet long range land tenure requirements by decontrolling agricultural land prices and changing the system of government purchase and resale of agricultural land to a system of compulsory sales, transfers to be effected directly between individuals, but under strict limitations as to who may acquire farm land and how much may be held.

Under the system of compulsory sales, the local land commissions must require landowners who become absentee owners, or whose holdings otherwise exceed retention rates, to offer their excess lands for sale to eligible bidders. An eligible bidder will be any individual certified by the local land

⁹ Y360=\$1.00.

commission as being a cultivator and meeting the retention rate requirements. Normally, therefore, transfers will be made directly between individuals without restrictions as to maximum price, but subject to strict government supervision with regard to retention rates. In the event no bidder appears, the Government stands ready to purchase the land at an "official government purchase price." This price, which the Ministry of Agriculture and Forestry proposes to set at about Y5,000 per tan, or about seven times the former legal price level, will be, in effect, a floor price. Instances in which the Government would actually conclude purchases of land are expected to be rare, since in all normal cases at least one eligible buyer will bid for the land. Any profits resulting from sales of land within 10 years of its acquisition by farmers from the Government under Land Reform must be shared with the Government.

The Japanese Government's action decontrolling agricultural land prices was considered necessary to adjust the price of agricultural land to the general price level. Decontrol is expected to result in a free market level of agricultural land prices that will not exceed levels justifiable in terms of the income potentials of the land. Limitations on retention rates and eligible purchasers remain unaffected. These limitations are the basic features of the Land Reform Program necessary for insuring continued widespread ownership of land by those who cultivate it.

Evaluation and Outlook

One of the most common errors committed by those unfamiliar with the details or limitations of the Land Reform Program in Japan is to conclude that the program is the panacea for all the problem of agriculture in this country. However, such is not the case, nor was it General MacArthur's intention that the program be so considered. The original SCAP Memorandum, referred to earlier in this discussion, recognized that transfer of land-ownership alone without correction of other basic evils in the agrarian economy would be no effective solution for the agricultural problems of the country. Accordingly, the memorandum outlined a comprehensive program of reform needed for the long range stabilization and improvement of agriculture. Land reform was only one of the important aspects of that program. Other important measures specified were:

- a. The development of a program for providing long and short term farm credit at reasonable interest rates.
- b. The initiation of measures to protect farmers against exploitation by processors and distributors.
- c. The initiation of measures to stabilize prices of agricultural produce.
- d. The development of an effective democratic agricultural extension program.
- e. The development of a program to foster and encourage an agricultural cooperative movement free of domination by non-agrarian interests and dedicated to the economic and cultural advancement of the Japanese farmer.

Although it is not within the scope of this paper to discuss these programs and the progress that has been made in their implementation during the past five years, the story is an impressive one.

In addition to the benefits they gained from the agricultural reform programs under the Occupation, farmers also have benefited from the inflationary conditions that developed following the end of World War II, particularly up through the year 1948. The shortage of food in the country enabled farmers to sell significant quantities of their products at extremely favorable prices. The rural population enjoyed a farm prosperity unprecedented in Japan's history. This era, however, appears to be approaching its end. With decreasing effective prices and rapidly increasing fertilizer and other costs, farm income has declined significantly during the past two years. Farmers are finding it more difficult to obtain funds necessary for production operations. Although they no longer pay high rents, farmers now pay land taxes, irrigation and drainage costs, and some other imposts formerly borne by the landlords. The potential adverse effect of food imports on farm prices also is assuming increasing importance. Another significant question mark is the attitude that the Japanese Government will maintain toward agriculture in the future as its emphasis on foreign trade is intensified. The pre-World War II pattern was to sacrifice agriculture's welfare for that of the export trade.

The real test of the permanent benefits from the agricultural reform programs that have been instituted under the Occupation will come during the next several years. Positive efforts will be required by government officials and farmers alike, if the progress made by the rural population on their two and one half acre farms since World War II is to be maintained on a permanent basis.

SOME EFFECTS OF LAND REFORM IN THIRTEEN JAPANESE VILLAGES

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THE general facts, definitions, and procedures of the Land Reform Program in Japan have been well presented in the previous article. Our attention here will be focused upon the Land Reform Program as it was observed in 13 villages. These villages, chosen as representative, are scattered over the four Japanese islands—one in Hokkaido, one in Shikoku, two in Kyushu, and nine in the main island of Honshu.

The main criteria used in the selection of the villages to be studied were type-of-farming and geographic location; secondary criteria were population characteristics, degree of urban influence, amount of off-farm employment, extent of feudal survivals, presence or absence of handicrafts, and characteristics of the terrain.

The villages were visited in May-June 1947 and again in December-January 1949-50. The field staff was composed of Americans and Japanese, and included a wide range of specialists—rural sociologists, agricultural economists, anthropologists, information technicians, and map-makers. An effort was made to record observations on all phases of village life as affected by the Land Reform and other phases of the Occupation program. The present comments are limited to the matter of Land Reform. For a full report of our findings in these villages, see *The Japanese Village in Transition*, General Headquarters, Supreme Commander for the Allied Powers, Natural Resources Section, Report 136, Tokyo, 1950.

A Note on Farm Tenure Classifications

The tenure classifications in Japan vary widely from those in the United States. Whereas the United States Statistics report three—owners, part-owners, and tenants (including share-croppers)—the Japanese farm tenure statistics in detail comprise five categories, as follows: landlords, that is, operators who rent out the major portion of their land, though they themselves often operate a farm; owner-cultivators, who own the land cultivated; owner-tenants, who own from 50 to 90 percent of the land they cultivate; tenant-owners, who own 10 to 50 percent of the land they cultivate; and tenants, who own 10 percent or less of the land they cultivate. The tenure classifications differ in the two countries because of widely differing man-land relations.

In the 13 villages, which were found to be generally representative of Japan as a whole in tenure groups, about a fourth of the farm operators were in the last group, that is tenants owning 10 percent or less of the land they cultivate; roughly a sixth were in the tenant-owner group, owning 10 to 50

percent of their land; a little less than a fourth were in the owner-tenant group (owning 50 to 90 percent), a little more than a fourth in the owner-cultivator, and a little less than a tenth in the landlord classification. It is significant that even before the Land Reform, operators who owned no farm land or homesites constituted less than five percent of the farm operators, although many operators, as suggested above, owned but a fraction of the land they cultivated.

Another farm tenure characteristic that differs widely from the American pattern is that there has been practically no mobility among Japan's tenant farmers. The explanation lies in two factors: (1) most tenants were not wholly without ownership of land, and (2) the great pressure of population on land resources made it difficult for a tenant to find a new farm, had he wanted to leave the one he was on. Broadly, land tenure systems may be expected to be most tolerable to the tenant in situations where he has ready opportunity to move from agriculture to non-farm employment. In thinking about the tenure classifications, it is important to remember, as pointed out by Mr. Williamson, that farm sizes are very small. In the 13 villages, 66 percent of them were two acres or less, only 14 percent of the farms were five acres or more, and 34 percent were under one and one half acres.

Many of the more vicious qualities of Japan's farm tenure system—buttressed as it is by religion and family relations—center around the limited opportunities of the tenant family to move, which in turn are based upon the great pressure of population upon the land. Moreover, where farm operating units are so small, so desperately needed, and so greatly conditioned by religious and family practices, large landowner families exercise tremendous authority over the lives of their tenants. In pre-Occupation Japan, more than a score of landlords had a thousand or more tenants. There was one such landlord in one of the 13 villages cited; and several others with more than a hundred tenants. Democratization in Japan could begin only when ownership of the land was made more widespread.

The Land Reform naturally had its greatest effect in increasing the amount of arable land that families owned and in decreasing the amount of land owned by non-operators, of whatever kind. In short, the program was one of increasing landownership by the farm families who owned the least land, and decreasing landownership by persons or agencies who did not cultivate it, whether the titles to such land were held by absentee owners, corporations, shrines or temples, or resident owners in excess of that which they cultivated.

Changes in Landownership by Tenure Groups

Between May 1947 and January 1950, the period during which the Land Reform law was put into operation, the number of owner-cultivators in the

13 villages increased 112 percent. To say this another way, the proportion of arable land that was cultivated by owner-operators rose from 54 percent at the beginning of the period to 87 percent at the end of the period. The remaining 13 percent, leasable land, was made up almost wholly of the areas slightly larger than that cultivated by the owners. This leeway, as pointed out by Mr. Williamson, provided for needed flexibility in the tenure system.

The number of farmers in the owner-tenant group increased 14 percent during this period, whereas the number in the tenant-owner group decreased 32 percent, and the number of tenants owning less than 10 percent of their land or no land decreased 70 percent. The small proportion of families who owned no land at all at the beginning of the period was further reduced, to slightly less than two percent. In other words, a little over 98 percent of all the farmers in these villages owned some land at the end of the Land Reform period, and 81 percent owned 50 percent or more of their land, as compared with 58 percent of them at the beginning of the period. Practically all of the few families who owned no land had failed to qualify for purchase under the Land Reform Program, in that their farms were so tiny that it was not believed they could be considered farmers. In April 1947, five percent of the farmers in these villages had farms of less than one fourth of an acre. A little over two thirds of all farm families within the 13 villages purchased some land under the program and about a third of the remainder sold some land.

Practically all of the land purchased was bought by the families already operating it. This occurred because of the permanence of the tenant's residence, and because of the general stability of the Japanese family as an institution. It was not uncommon for land to be sold to a family made up of a grandfather and a grandson, since the likelihood is so great that the grandson will carry on the farm when the grandfather dies. The Japanese family is not characterized, as is ours, by the single generation family, but rather by the continuation of the family line, usually at the same homestead, from one generation to the next. The movement of people from rural to urban areas in Japan has been made up almost wholly of the surplus children from the family, that is, the children unable to remain on the family farm.

The Central Role of the Village Land Commission

The Land Reform in Japan was carried out village by village. It was at the village level that the land was purchased and resold to the farm operators. These transactions were handled by a Village Commission, made up, as Mr. Williamson points out, of five tenants, three landlords, and two owner-operators. The Commissions, which were elected for this purpose by the villagers, had the responsibility of administering the Land Reform Program. This procedure afforded the Occupation an early opportunity to have village elections, and to arrange for the interests of the tenants to be represented by tenants themselves. Under the traditional farm tenure system,

the tenants' interests were the sole responsibility of the landlord group. Since the traditional descriptions of landownership and use in Japan have been on record in the village hall, it was important that the new land transactions also be taken care of at that level.

When the Village Land Commissions first began their work, as we observed in practically all of the villages in mid-1947, the tenant members of the Commission were cautious, and often assumed that they had no real authority. The picture gradually changed in their minds and in the villagers' minds, as the land of absentee owners was purchased, and later as the land of the shrines and temples and still later the excess holdings of the local resident landlords were bought. The real proof that the tenant members had authority became clear to the villagers only after the land began to be resold to the farm operators, and records of it were being made in the village land books, and then certified to the district offices for permanent registration.

These Land Commissions in the 13 villages proved to be an important experience in adult education. This, it is our impression, occurred throughout Japan. In each village, the five tenant members, together with the secretaries to the Commissions, got real experience in the handling of matters recognized as of great importance to the villagers, namely, the redistribution of land titles. The result was that within a period of two years a large new segment of the village population came into new responsible participation in an activity which the people as a whole favored very much. Moreover, the Land Reform in Japan is all the more secure because it was carried out village by village by these local Commissions. It is significant that practically all of the decisions of the Village Commissions were put into operation. There were, of course, procedures for appeal from the action of the local Commission, but such appeals were rare. The Village Land Commissions, therefore, were valuable in two general ways: first, they made sure that the details of the decisions were formulated with local information available and local sentiment considered, so that they were generally conceded to be just by the villagers; second, the important activities of the Commissions gave training in public affairs to representatives of the erstwhile inarticulate tenant families of the village, thus assuring this group spokesmen more capable of maintaining the gains in years ahead when the pressure of tradition may well challenge the effects of the Land Reform.

Farm Operating Units Unchanged

The sizes of the farm operating units were changed but little by the Land Reform Program. There were in 13 villages no plantation type operations. Rather, the large land holdings were subdivided into small operating units. The landlords' operating units were usually about the same size as those which they leased out to other families.

There has been some misunderstanding in the United States about the Japanese Land Reform as related to production, for it has been erroneously assumed that large landowners operated large units of land as is true in many parts of the United States. The Land Reform in Japan did not break up operating units, but rather more nearly conformed ownership units to traditional operatorship units. The Land Reform in Japan has provided a basis for increasing production, rather than reducing it; for the new owners there are taking more interest in the land they own than they did in the land they leased.

Attitudes of Villagers to Land Reform

The villagers in the 13 localities studied generally agreed that the Land Reform has been a good thing. The new owner families were glad they had purchased. Detailed efforts to find an exception proved in vain. There were reports and rumors that some new-owner families preferred the old status to the new, but when the new-owner families spoke for themselves, they said they wanted to own the land, and did not prefer to return to their former status.

Generally, the greatest dissatisfaction with the Land Reform was expressed by the landowners who had owned acreage slightly in excess of their legal retention rights, mentioned in the article by Mr. Williamson. Those landowners who sold small acreages pointed out that they looked upon their holdings as a basis for educating their children, or setting up a new household, or some other matter closely related to the family's future. The larger landlords appeared to have been less immediately disturbed. Among the reasons seem to be that many of them have alternative opportunities for making money, such as income from forest land holdings, and from business other than agriculture that they might enter. Furthermore, the income opportunities of the larger landlords from this leased out land had already been undermined by legislation which had shifted the basis of rent from fixed rents in kind to a relatively low cash rent per unit of land; and also by special tax legislation in 1946 and 1947 which subjected landlords to heavy levies, and as a result had already caused many of them to forfeit part of their lands to pay the taxes. Another factor is that the farm tenants in the areas where land holdings were most concentrated had, prior to the war, been able to get permissive legislation enacted by the Diet to permit increased ownership of land by tenants. The fact is, the Land Reform of the Occupation was in general patterned after that of the prewar legislation, with one very important difference—namely, that whereas the prewar legislation was permissive, the Occupation Land Reform was mandatory. In addition to all of this, many of the tenants were kinsmen or long-time residents on family lands, and over the years a considerable ritual of responsibility and obligation had developed, and not infrequently landlords found

themselves encouraged to play the role of the father. As a result of all of these considerations, many of the landlords had come to feel that the tenant families were not wholly without claim to the land they cultivated. The most important factors operating, however, were that the Land Reform Program was supported by military occupation, and that they had other possible sources of income available to them, and that pre-Occupation legislation had undermined their income from land rents.

The Land Reform Program, as reported by all villagers, whether small new-owners or erstwhile landlords, has resulted in raising the status of the smaller farmers and lowering the status of the larger landowners. The great gulf which had earlier separated the larger landlords from the rank and file of smaller farmers has been narrowed.

The attitude of the people is generally one of hope for the future. The new owners take more interest in tax matters and public affairs generally. The erstwhile landlords recognize that they need to pay more attention to what the rank and file of villagers are thinking and wanting to do. The result is that the proportion of people who are voting has increased greatly and that new owners are appearing in appreciable numbers among the elected officials, such as members of the Village Assembly, members of the board of directors of the local cooperatives, and so on.

The Land Reform in Japan has made a real contribution toward the democratization of the Japanese village. But this democratization occurs within the framework of a very limited land resource per capita, and perhaps in the long run can be successful only if there is opportunity for an increasing proportion of the total population to find a livelihood in industrial and commercial activities. The number of farms in Japan has remained practically stationary for the last three quarters of a century, and there is practically no more potentially arable land. Moreover, there is little likelihood that, even with the application of now known scientific practices, the farm family can get along with less land per farm than at present, which, as Mr. Williamson indicated early in his article, averages about two and one half acres, with a vast proportion of all farms of two acres or less.

FOOD PRODUCTION STRATEGY AND THE PROTEIN-FEED BALANCE

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THE strongest military defense is one in depth. So it is in the grand strategy of food production in this period of emergency. The vigor with which we forge each line of our food defenses will determine our final success. No phase of the ramified problem should be neglected. But just as military strategy must be changed to take account of new weapons and new conditions, so must new approaches be sought in agriculture.

At the outset of World War II, American agriculture had a vast reserve of underutilized resources and capacity, including new technology that had not yet been exploited. Aggregate farm production expanded remarkably to meet our needs and resources were adjusted to achieve phenomenal increases in specific commodities that were especially needed. Possibilities were studied of using scarce resources more effectively to produce more food by adjusting the production pattern toward plants and animals that produce more nutrients per unit of resources.¹ But most of the wartime expansion came through cashing in on the reserve capacities that had accumulated in the prewar period. More complete application of known technology, fuller use of underutilized resources, together with shifts in acreage and livestock production required to meet specific needs were the prime movers. Favorable weather conditions also helped.

Similar measures can be applied again, but it is very doubtful whether a corresponding expansion from present levels could be obtained, at least in anything like the same time. Like the rest of the national economy, agriculture has been operating at more nearly full capacity. We have adopted improved practices as they have come along. The Nation does not have the unused reserves that existed in 1940. There are still important opportunities, but they must be pursued jointly with other approaches. Emphasis must be placed on a combination of things rather than the power pack of any single approach.

The keynote must be better management of resources and a defense in depth on at least three major levels. A basic inner core or final level in case the outer defenses are pierced and needs are urgent, lies in the fact that the Nation's food supply, measured in nutrients, can at any time be enormously expanded from the same basic resources by shifting food production and consumption patterns to include more plant and less livestock products. From seven to 10 times as much food energy can be obtained from

¹ See R. P. Christensen, *Efficient Use of Food Resources in the United States*. U.S.D.A Tech. Bul. No. 963, October 1948. This was first issued as a BAE processed report "Using Resources to Meet Food Needs" in 1943.

land and labor used to produce grain, potatoes, and certain vegetables as from resources used to produce feed for livestock products. This would involve some sacrifices of consumer preferences and habits, but the level of consumption of livestock products is so high in this country, that only a small shift in customary food patterns would provide a considerable margin of safety in case of real need. This situation is a principal reason why the spectre of starvation, which breathes down the neck of so many millions of the earth's inhabitants, long ago disappeared from this Nation.

A second line of our defense in depth is that within the livestock products certain moderate changes in food patterns would provide more nutrients per unit of resources than would others. Whole milk, for example, provides twice as much protein per unit of resources as do hogs, and much more of several other nutrients. A considerable number of very significant possibilities are present at this level, including such things as more complete utilization of the non-fat solids in milk.

A third and perhaps outermost perimeter of defense is that which involves less change in the patterns of production and consumption but which relates to management of the feed-producing resources for livestock so as to attain more output from the same land and labor base. This consists partly of applying known feeding technology and partly of planning ahead so that the pattern of feed crop production will be such as to make it possible to apply the latest knowledge in livestock nutrition.

If the present emergency should worsen, there is little doubt that the sum total of food strategy would include some plans at every possible level, from the innermost core to the outermost perimeter. Rationing and other means would doubtless be used again to insure the most equitable distribution of resources and food supplies.

In the situation as it is at present, the chief problems are mainly along the outer perimeter. It is desirable to interfere as little as possible with customary patterns of consumption and to do all we can to provide for expected demands that can be anticipated. Speaking nutritionally, we should probably consume more milk and eggs and less meat. This would utilize resources more effectively but would be less in accord with consumer preferences as they now stand. Taking preferences as they are, a major problem is how we can produce more of the existing pattern of livestock products with available feed supplies. The tightest situations appear to lie in meat production. Strangely enough, more opportunity for improving efficiency of livestock production through improved feeding practices probably exists with meat animals than with dairy cows or poultry. One of the reasons for this is that more of the concentrate rations for dairy and poultry feeding come from commercially prepared feeds, where the greatest advantage has been taken of the scientific advances in nutrition.

Hogs and the Protein-Feed Balance

The so-called protein-feed balance is one of the broad measures used to indicate how well rations are balanced with respect to desirable proportions of protein and carbohydrate feeds. More than protein is involved, but it serves as a crude measure of good or ill nutrition in general. Considerable maladjustment in the use of feed resources with respect to the protein-feed balance has long been recognized, but its significance has not perhaps been fully appreciated. The writers believe that a considerable increase in production of meat could be obtained from the same feed base if measures could be taken to expand production of protein and if that protein were properly fed. The purpose of this paper is to make some initial appraisal of this possibility.

Rations fed to livestock frequently do not contain enough protein to be well balanced. Sometimes they contain too much, but more often too little. The situation for hogs will serve to illustrate what is involved in this problem. Experimental evidence indicates that certain minimum quantities of both digestible protein and total digestible nutrients are needed to raise hogs to a given weight. These minima could be supplied by many different combinations of feed grains and high-protein feeds. But the feeding practice on many farms apparently is to rely on corn and small grains as sources of protein to a much larger extent than is desirable. In so doing much feed in the form of carbohydrates is in effect wasted.

The accompanying diagram indicates alternative combinations of corn and soybean meal that would provide the minimum quantities of protein and digestible nutrients necessary to raise a hog to 250 pounds. This includes a proportionate share of the feed eaten by the breeding herd, which must be charged against the pigs, and also the feed consumed by the pig up to weaning time. Any of the feed combinations represented by points along the line PP' would provide 111 pounds of digestible protein. Similarly, any of the points along the line NN' would provide 920 pounds of feed (or about 720 pounds of total digestible nutrients, as the T.D.N. values of corn and soybean meal are about the same, 78.6 percent). However, only points along the bent line NAP represent alternative combinations of corn and soybean meal that simultaneously would provide the necessary quantities of digestible protein and total digestible nutrients. The bent line NAP thus becomes a first approximation of that bugbear of the present-day college sophomore in Economics I, a product contour line, representing the different combinations of corn and protein feed that can be used to produce a 250-pound hog. The true contour line would be a continuous curve like one of those described elsewhere by Heady and others.² The

² Earl O. Heady, "Elementary Models in Farm Production Economics Research," *this Journal* May 1948, p. 217.

contour is represented as a bent line here, because this is all that is permitted by the present state of the technical knowledge as reflected in current feeding recommendations. Cooperative research now in progress will presently make possible a more definite representation of the true relationship for various feeding situations.

Minimum needs for both protein and total nutrients would be met at Point A with 760 pounds of corn and 160 pounds of soybean meal.³ Along

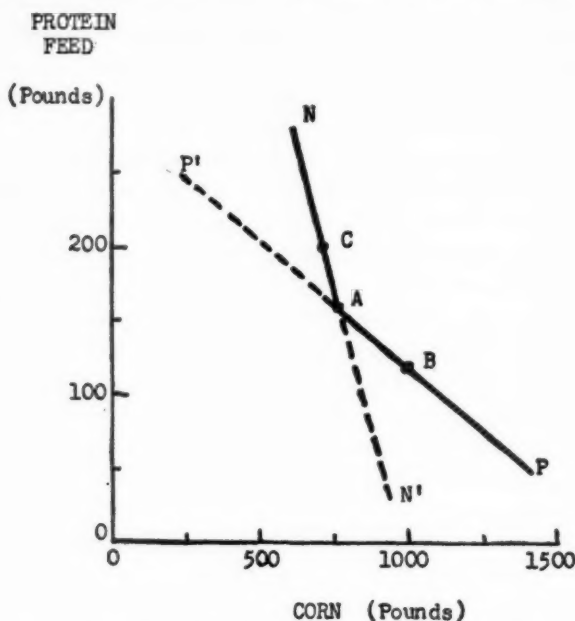


FIG. 1.—PROTEIN FEED WITH 38.5 PERCENT DIGESTIBLE PROTEIN AND CORN WITH 6.5 PERCENT DIGESTIBLE PROTEIN.

the line AN, the ration would contain more protein than necessary but only the minimum quantity of total digestible nutrients. On the other hand, along the line AP the ration would contain more total digestible nutrients than necessary but only the minimum quantity of digestible protein. The rations used to raise hogs on some farms may contain a higher percentage of digestible protein than is necessary. They would be represented by points along AN. But on many farms the prevailing practice is to feed a ration relatively low in protein content. In order to provide the

³ The example is simplified for easier exposition. Actually the minimum needs for protein involve not only quantity but quality. A variety of different proteins and associated vitamins must be supplied in certain minimum quantities if the ration is to be adequate for good nutrition. A certain proportion of animal protein feeds or the equivalent in so-called APF (animal-protein factor) must go along with the plant proteins. For the present purpose, we shall assume that these matters have been provided for under the general heading of minimum digestible protein.

minimum quantity of protein, hogs are then fed more corn than is necessary to provide the minimum quantity of digestible nutrients.

The protein contents of rations differ from point to point along NAP. For example, the digestible protein content of ration A is 12 percent. For points above A the protein content is higher and for points below lower. Information concerning rations fed to hogs is not complete enough to determine very exactly the average digestible protein content of all feed consumed by hogs in the United States. But estimates based on data for the 1941-42 feeding year show a digestible protein content of about 10 percent.⁴ This is represented by ration B in the diagram. It includes 1,000 pounds of corn and 120 pounds of protein meal (with 38.5 percent digestible protein). This may be compared with ration A, which includes 760 pounds of corn and 160 pounds of protein meal. In this range one pound of protein meal could be substituted for six pounds of corn if combination A were substituted for combination B. This is simply because a pound of protein meal (with 38.5 percent digestible protein) contains about six times as much protein as a pound of corn.⁵ If corn is relied upon as a source of additional protein in this area, the excess of carbohydrates above needs for energy would not be effectively utilized. A longer period of time would be required to raise a hog to 250 pounds with a relatively low protein content ration. Of course, the composition of the hog carcass in terms of protein and fat also would be affected. Some of the "excess" of carbohydrates would add fat to the hog carcass and this would have some value.

Minimizing Feed Costs

The ration that would minimize feed cost per 100 pounds of hog would depend upon relative prices of corn and protein meal. Using average U. S. farm prices of the last five years—\$2.80 per 100 pounds for corn and \$4.54 for soybean meal—the feed cost for ration A would be \$28.58 as compared with \$33.40 for ration B. In other words, the cost of feed could be reduced 15 percent by replacing B with A. The reason for the lower cost with A is that soybean meal is a lower cost source of protein than corn (this is assuming that the soybean meal is properly supplemented with animal protein). For example, with the average prices of the last five years, a pound of protein from soybean meal cost about 12 cents as compared with 43 cents from corn. On this basis an additional pound of soybean meal would be

⁴ R. D. Jennings, *The Deficit in Protein for Livestock*, U. S. Bureau of Agricultural Economics, April 1946. Jennings estimates that 22 percent more protein would have been required in the 1941-42 feeding year to provide a balanced ration containing about 15 percent crude protein.

⁵ Morrison in the 1949 edition of *Feeds and Feeding*, pp. 480-481 summarizes experiments in which rations consisting of corn only were compared with rations consisting of corn and tankage. The substitution rates were such that each pound of tankage replaced six pounds of corn. Tankage contains more protein than the protein feed used in our illustration, but this is offset partly by the fact that the experiments did not account for the feed of the breeding herd and the weanling pig, in which protein needs are especially high.

worth more than three times as much as a pound of corn to farmers feeding ration B, who could shift toward ration A.

Feeding a ration with more protein than is contained in ration A, or proceeding along the AN contour toward C would not be profitable. But the penalty for overfeeding protein would be very slight under the price relationships indicated above. The feed cost of ration C, which includes 720 pounds of corn and 200 pounds of soybean meal and contains 14 percent digestible protein, would be \$29.16 or only two percent more than ration A. An excess of protein would be fed—124 pounds instead of the minimum of 111 pounds—and the additional protein would substitute for carbohydrates as a source of energy. There would be some loss to the individual farmer from feeding such a high-protein ration. Soybean meal would provide digestible nutrients at a cost to farmers nearly twice that of corn, with the prevailing prices of the last five years. But as ration C would involve only a small substitution of soybean meal for corn, the net loss to the individual would be slight. From the national point of view, overfeeding protein would be a more serious matter as it would encroach on the limited supply of protein. Some reallocation among users would be much more productive.

Expanding Hog Production

The average protein content of rations fed to livestock appears to have changed little in the last decade. The estimated percentage of digestible protein contained in all concentrates fed to livestock was close to 10 percent each year from 1941 through 1949.⁶ Moreover, other estimates show that there has been little change in total pounds of feed per 100 pounds of hogs produced.⁷ A trend toward a lower input should have taken place, had there been a net shift to rations containing a higher percentage of protein. Of course, the protein content of the total feed consumed (including forage) by all livestock may have increased slightly as a result of shifts to higher protein content forages, but this probably has had little effect on rations fed to hogs.

If the product contour represented by NAP in the diagram has some validity, it is clear that an expansion in the supply of high protein content feeds would make possible a very considerable expansion in hog production. In fact, the arithmetic of the line PP' suggests that adjusting rations from B to A by adding additional protein to the existing feed supply would increase hog output about 30 percent. The entire 1,000 pounds of corn becomes as productive as the first 760 pounds or a little over 30 percent more. Such an increase on a national basis would require the equivalent of an increase of about 75 percent in the supply of soybean meal or its equivalent

⁶ R. D. Jennings, *A Look at the Protein Situation for Livestock*, U. S. Bureau of Agricultural Economics, F.M. 76, page 2.

⁷ R. D. Jennings, *Consumption of Feed by Livestock, 1909-47*, U. S. Department of Agriculture, Circular No. 836, page 99.

in other protein feeds. These very crude calculations assume that the B ration about represents current feeding practices and that this might be adjusted to A. Granting that B may represent fairly well the national average of present feeding practice, it is certain that the variations in individual producers' practices cover a wide range about the average, extending perhaps the whole way from P to C. Thus an adjustment to move all producers to the A point would have to deal with the practical problem of preventing some from overfeeding protein beyond A.

National Significance

Without pressing the accuracy of the preceding calculations for more than they may be worth as illustrative background, the nub of the issue that emerges is clear enough. An increase in the protein feed supply would add greatly to the efficiency with which our total feed supply could be utilized. How can this best be accomplished? One way to expand the total supply of protein feed from the land used to produce feed crops for hogs is by shifting land to crops that have relatively high yields of protein per acre. In the Corn Belt this means soybeans. Under recent conditions soybeans have produced about 475 pounds of digestible protein per acre as compared with 220 for corn. The economy of shifting land from corn to soybeans will depend on many considerations. But calculations on the above basis indicate that a given acreage of land used to produce corn and soybeans in such proportions as to yield Ration A will produce about 13 percent more pork than if used to produce the B combination. In addition, the output of soybean oil would be increased about 30 percent, much of which would be a net addition to the supply of edible fats.

Other Livestock Products

The possibilities of improving the protein-carbohydrate balance are not limited to hogs. According to Jennings' 1941-42 estimates cited earlier, the following *percentage increases* in digestible protein (in all feed other than pasture) would be necessary to achieve properly balanced rations: hogs—22, poultry—14, beef cattle—12, and dairy cattle—6.³ As previously pointed out there appears to have been little change in the percentage of digestible protein contained in the feed concentrates fed to all livestock in the last decade. There probably has been some improvement in the protein content of forage crops fed. But it may not have been enough to affect greatly the protein deficit. It seems not unlikely that percentage increases in digestible protein of the magnitudes indicated above would bring about corresponding increases in livestock output.

³ Recent experiments with dairy cows indicate that slightly lower levels of protein than formerly recommended may be sufficient for milk production. This may mean that somewhat less additional protein is needed for dairy cows.

On an over-all basis, it may be ventured that a 10-percent increase in the digestible protein content of all feed (other than pasture) would make possible an expansion in total output of livestock products of nearly 10 percent. In other words, about 10 percent more livestock products could be produced from the same total feed supply, if it were about 10 percent higher in protein content. The additional protein would have to be distributed among livestock in accordance with "deficits," as indicated by the percentages listed above. It appears that it would be possible to expand the total output of livestock products substantially from the resources devoted to feed and livestock production by shifting the combination of feed crops grown so as to raise the protein content of the feed supply.

If we are to get concrete results, farmers need to recognize more generally the improvement that follows from feeding higher protein rations. They need to know in the case of hogs that an additional 40 pounds of soybean meal will sometimes replace 240 pounds of corn in raising a hog to 250 pounds. They also need to know that high-protein-content feeds usually are much lower-cost sources of protein than corn or small grains, and that a considerable part of the corn and small grains fed to livestock has little value except as a source of protein.

Over the last 15 years prices of high protein feeds have changed little relative to feed grains. This suggests that not enough progress has been made. With wider recognition of their feeding value, prices of high-protein feeds would probably rise in relation to those of feed grains. Such higher relative prices for protein feeds would help to bring about an expansion in the supply of these feeds relative to feed grains.

Other kinds of adjustment in the use of protein feeds might be made to expand output. In instances in which the protein content of livestock rations is higher than necessary, it could be reduced and used to increase the protein content of rations that are not properly balanced. Such adjustments may be difficult to achieve if it is generally true that only small reductions in feed cost would result from reducing the percentage of protein contained in such rations. The extent to which some of our livestock are fed too much protein is not known, but it may be appreciable.

More protein might be made available for livestock by increasing imports of protein feeds or by reducing exports. Here account should be taken of the international effects in order to achieve a desirable international allocation of resources. For example, it would be possible to export more wheat in the form of flour and in this way increase the supply of mill feeds for domestic use. This might be undesirable from the point of view of livestock production in foreign countries. Nevertheless, it would be worthwhile to explore the possibilities along this avenue.

As already indicated, more protein could be made available from the land used to produce feed by devoting more land to crops that have rela-

tively high yields of protein. It is worth noting that, had it not been for the large expansion in oil seed crops, the "deficit" of protein would have been much larger in recent years. The extent to which it will be desirable to replace feed grains with oil seed crops in the next few years will depend upon other considerations as well as upon protein. But there are possibilities of producing more protein even without changing the acreages of the various crops grown. Yields of protein obtained with different varieties of forages and feed grains differ markedly. More emphasis might be given to growing crops and varieties of crops that have higher yields of protein, even though total output of digestible nutrients per acre may sometimes be lower. Wheat for feed may contribute to an expansion in protein production. Wheat is relatively high in protein and in some areas it yields more pounds of feed per acre than alternative grains.

A fact sometimes overlooked in the total protein feed situation is the effect of the change in the protein content of corn with the higher yielding hybrids. Hybrid corn has about 6.5 percent digestible protein as compared with about seven percent in open-pollinated varieties. As corn accounts for about half of all the protein in feed grains, this is a substantial difference. The development of hybrid strains with higher protein content would materially help the over-all situation.

This discussion has been mainly in terms of what might be done with little change in rates of output for milk and eggs or in market weights to which meat animals are raised. It may be possible to make better use of a given protein supply by adjustments in rates of production or in market weights. As animals attain heavier weights, they take less protein and more carbohydrates per pound of gain. But the edible protein made available for human use per pound of gain also declines.

One should not overlook the possibility mentioned earlier, that the total supply of protein food for human use from a fixed supply of protein feed can also be increased by adjustments in the relative quantities of the various livestock products produced. For example, feed used to produce whole milk or eggs provides much more protein food than does feed used to produce meat. This area of adjustment lies within our second line of defense in depth, but it is a very important bastion from the point of view of nutrition.

To sum up, briefly, the possibilities of expanding livestock production from existing resources through adjustments in the protein feed supply are substantial. Much detailed analysis will be necessary to determine definitely what specific adjustments will be most desirable. With consumer demand for food expanding and farm production costs rising, a valuable public service will be performed if these and other ways of increasing output from limited resources in our agricultural economy are thoroughly explored.

SOME FUNDAMENTAL ECONOMIC CONCEPTS AND ECONOMIC ANALYSIS OF COSTS*

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CONSIDERABLE research in agricultural economics has been and continues to be directed toward the objectives of "determining the cost of production" of farm commodities. From this research have come some very "good answers"; but what are the questions? Or as Professor Jacob Viner stated a somewhat similar problem in discussing Frederick C. Mills' *Behavior of Prices*: "Professor Mills has made a valuable contribution to the statistical tools useful in the search for answers to questions concerning economic relations, once the questions have been asked. From the point of view of economic theory, the only criticism to be made of his work is his apparent satisfaction with a technique ill adapted to finding out *what questions to ask*."¹ With regard to supply analysis in agriculture it is not "a leaky roof that needs to be repaired but a foundation that needs to be reconstructed."²

Failure to utilize logical analysis in determining the most appropriate questions has led to weaknesses that occur in numerous empirical studies. "Economic analysis" of accounts has led to irrelevant or even misleading conclusions and to suggested farm record systems that often have been unduly complicated because they have been assigned functions far beyond what can be expected of any records.

What are the relevant questions with respect to economics of cost? In a supply analysis questions with regard to costs are relevant only as they lead to answers that yield information with respect to production decisions and to pricing policy at the farm and/or at the aggregate level. These questions may be of a historical character for purposes of answering *why* with respect to economic events of the past; or of greater importance are the *ex ante* questions of *what kinds* and *how much* with regard to resource allocation and output in the future.

At the farm level, except in possibly a few cases, the economic questions with regard to cost may be limited to production decisions. If for practical purposes it is true that the individual farmer faces either a perfectly elastic

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For helpful suggestions in the preparation of this paper the author is indebted to his colleagues in the Department of Agricultural Economics at North Carolina State College and to Kenneth L. Bachman of the Bureau of Agricultural Economics.

¹ Jacob Viner, "Mills' Price Behavior," *The Quarterly Journal of Economics*, Vol. XLIII, 1929, p. 344.

² I am indebted to Professor Leontief for this phrase; in the opposite sense it was used by Leontief in his comments regarding Keynes' *General Theory*, see Wassily Leontief, "Postulates: Keynes' General Theory and the Classicists," *The New Economics*, Seymour E. Harris, (editor), Alfred A. Knopf, New York, 1947, p. 242.

demand function, or, in the case of institutionally controlled prices, a demand function made up of discontinuous horizontal segments, then there is no relevant place for cost analysis for purposes of pricing policy at the farm level. At the institutional level, however, where pricing functions may be established, a cost analysis if logically designed would be appropriate as an aid in formulating rational pricing programs—pricing programs consistent with the “desired objectives” with respect to resource allocation and output.

The scope of this paper is limited to a clarification of the concepts of “net revenue” and “costs” that are applicable to supply analysis. Such a clarification should be useful in the construction of a more logical framework for empirical supply analysis. In summary, incomplete and misleading conclusions in numerous cost of production studies can be traced to: (1) the erroneous allocations of costs among products or among periods of time, (2) a failure to make an economically accurate evaluation of opportunity returns for factors owned and for additional factors that might be obtained, (3) a failure to view from an *ex ante* position the conditions facing those individuals who make the economic decisions, and (4) a failure to give due consideration to the role of classification which is necessary for accurate and meaningful measurement.³ The first problem can be solved within a properly designed accounting system; for solutions to the last three, the economist must search outside the field of accounting and within the fields of economics, logic, technology, and social behavior.

Net Revenue and Costs

The particular items that enter into the “costs” to the farmer and his family depend upon the nature of the business; and these items are not necessarily the same as those entering into the “costs” of a particular commodity. Therefore, it is necessary to consider the character of the processes of production and of the farm business.

The family may own a large proportion of the factors used in the business. Of the total assets the farmer may own all or any portion of the land and buildings, equipment and power, livestock, funds for current operations; and his family may provide all or a large proportion of the labor. In cases where all of the above factors are owned, purchases from persons outside the family often consist of feed, seed, fertilizer, fuel, repairs, etc.—items that are completely used during the accounting period—and replacement of assets that are “owned” and used for more than one accounting period. In other cases any of these assets and the labor may be rented or hired, and therefore may require payments to persons outside the family, or in the case of “ownership” any item may be financed by the farmer’s own funds or by

³ The role of classification in the measurement of functions is clearly illustrated by Professor Heady; in this paper it will be treated only as it relates to the other problems. See Earl O. Heady, “Elementary Models in Farm Production Economics Research,” *this Journal*, May 1948, pp. 201–225.

means of borrowed funds; if financed by borrowed funds, this would require payments to persons outside the household. The farmer's interest in his own maximum "net revenue" is not independent of the "net revenue" of the other members of his household, for he must provide the funds for their expenditures on consumption. The farmer and his household are performing not one but a complex set of economic functions; they are contributing numerous factors of production to the business.

The process of production in farming is such that during a particular accounting period many factors are, for practical purposes, entirely depleted within the period; other factors contribute to production and consequently to revenue over more than one accounting period, while the initial outlay for their use may occur in a period or periods other than those in which these factors are used.

Another characteristic of farms is that numerous inputs within the accounting period contribute to the growth of more than one product, some of which may be joint products, derived from a particular enterprise, and in many cases an input contributes to the production of more than one enterprise (crop or class of livestock).

Under the above circumstances attempts to calculate "total costs of production" per unit of output or per unit of input of some particular factor have been made by allocating the "overhead costs" to specific products to determine "profitableness" of each product and to measure the net returns "to" or "for the use of" particular factors. In final analysis, however, it is usually admitted that such results, even though there may be no question as to their accuracy in an arithmetic sense, are extremely limited and sometimes misleading as measures of financial success, or as measures of "costs" in a supply sense. The question then arises, "why compute these measures?"—especially since such a procedure involves additional calculations and additional explanation of the qualifications and limitations.

There appears to be a "superfluity of choices" in measuring the financial performance of the *business as a unit*. In general, most of the measures used represent the "imputed returns to particular factors."⁴ First, it might be pointed out that there are no returns to any factors other than the *human factors*. All returns go to the persons concerned, but they may be for the employment of various factors owned by the particular person or household. An interest in functional distribution of income arises only because it may affect output and personal distribution of incomes at the aggregate level. Such measures as those that have been developed might more appropriately be used for comparison of returns for *homogeneous factors* in an economic analysis of a farm or in an aggregative economic analysis of supply or

⁴ For example, see John N. Efferson, *Farm Records and Accounts*, John Wiley & Sons, New York, 1949, pp. 19-25.

"opportunity costs"; but there is a serious question as to the homogeneity of factors as they are usually classified and with respect to the validity of considering the "opportunity cost" of each factor independent of other factors. And from the viewpoint of the individual, "opportunity costs" of factors owned are not expenses to him but are "opportunity income." "Opportunity costs" of factors owned are "costs" to the particular enterprise, business, or industry, but are not payments that the individual must make to persons outside his household.⁵

A great deal of the ambiguity found in such measures of financial performance can be removed by computing a "net revenue received by the farmer and his household for the factors owned by the household." This concept is useful both in accounting and in supply analysis. This figure would measure the income available to the family for consumption and for saving and net new investment. The net revenue is the difference between revenue and expenses of any specified period. In accounting the period is usually one year; in economic analysis the relevant period depends upon the particular problem. After a clarification of the concepts of revenue and expenses we shall re-examine the meaning and application of this measure of farm efficiency.

Items of farm expense for any period include all payments to persons or due to be paid to persons outside the household as a result of the production during the particular period. From an *ex ante* viewpoint, expected expenses and planned production would be substituted for the expenses and production that did in fact occur in an *ex post* analysis. These items we shall label as "farm expenses" in contrast to "costs", which would include both "farm expenses" and opportunity cost of factors owned. The specific items of expense then will depend upon the factors owned by the family as well as the particular system of farming. All items of expense have one thing in common: for a specific quantity of a factor it is in the family's interest to acquire this quantity at a minimum cost; furthermore, to produce any given quantity of a specific product it is in the family's interest to produce this quantity at a minimum total expense. These statements are not necessarily true when "returns to factors owned" by the family are entered as "expenses." An accurate record will show the magnitude of expenses that have occurred, but "opportunity cost" is a problem of economic analysis. Only in the case of depreciation is there any important problem of economic evaluation of expenses. To measure "opportunity costs" requires economic analysis of alternatives, which necessitates a great deal of information other than that contained in any accurate and complete set of accounts. Also, in accounting

⁵ For further discussion of opportunity costs see Joan Robinson, "A Digression on Rent," *The Economics of Imperfect Competition*. Macmillan & Co., London, 1948, pp. 102-119.

the problem is viewed from an *ex post* position; in economic analysis, if it is to be most useful, the problem must be viewed from an *ex ante* position.

For our purposes we may define the farm revenue of any period as those funds or the monetary value of those items created as a result of the farm business during the particular period. These items are available for paying farm expenses, and for consumption and saving by the household. All items of revenue have one common characteristic, viz., it is in the interest of the family that they receive a maximum for any given quantity of product. This maximum revenue taken with the minimum expenses is necessary for achieving maximum net revenue from a given output or scale; in addition, maximum net revenue among the alternative quantities of output is attained at that scale where marginal revenue equals marginal expense under conditions where marginal expense is rising, or in the event of discrete functions, where any additional revenue would be less than the necessary additional expense. However, for any individual and in any aggregate supply, due account must be taken of preferences of the family between additional net revenue and additional leisure, and between different lines of production and additional net revenue. Problems of valuation arise with respect to products grown on the farm and consumed by the family and with regard to appreciation of assets. For the farmer's use, it might be just as well to account for these in physical terms and to state such as supplements to "net cash revenue."

Defined in these terms, any increase in "net revenue," when the family's preferences are properly considered, is always coincident with an increase in the economic position (or "economic welfare") of the farm family; if the "net revenue" is negative, the family must live from previous savings (depreciation of farm assets and/or non-farm investments) or must go into debt to pay for consumption; to the extent that the net revenue is negative that amount of the farm expenses must be paid from previous savings, or farm debts must be increased by that amount without an equal increase in assets. Also, if the value of the negative net revenue exceeds the value of fixed expenses (the total of those expenses that did not vary with respect to output during the specified period), the family would have been "better off" financially if the farm had not been operated. From the viewpoint of the individual farmer this is relatively unambiguous information. In only the special case, where the family owns only one factor, does "the return to a particular factor," such as "labor income" or "returns on investment," provide this information. This concept of "net revenue" may be used as an unambiguous measure of financial performance of the farm in the past or of expected financial performance in farm planning. In addition, the "net revenue" for all factors owned is a *monetary measure* for comparison of the "economic welfare" of different farm families of comparable sizes who live under a set of comparable consumer prices.

The particular "expenses" used to compute "net revenue," however, are necessary but not sufficient for supply analysis of a particular product. For purposes of deriving particular supply functions of an enterprise or a commodity, "opportunity costs" of factors owned must be added to the particular "expenses" as defined above. This problem may be illustrated by using the summary of an account of a cotton enterprise:

Item	Quantity	Value	
Revenue: total	—		\$1,420
Lint	54 cwt.	\$1,217	
Seed	85 cwt.	203	
Expenses: Simple variable cash, total			\$ 220
Fertilizer 6-8-6	62 cwt.	\$ 105	
16-0-0	13 cwt.	27	
Seed	400 lbs.	15	
Ginning	11 bales	73	
Revenue less simple variable cash expenses			\$1,200
Resources used: 10.3 acres land (own), 1,312 hours of labor (own), and 336 hours hired labor, 443 hours of workstock (own), common crop equipment (own).			

The record shows that the cotton enterprise did add (or, if *ex ante*, would be expected to add) \$1,420 to the farm revenue and that farm expenses were increased by \$220 plus any expenses of the hired labor that may have been necessary because of the cotton enterprise, a balance of \$1,200 less necessary hired labor expense. This means that if the cotton enterprise had been omitted from the farm business and no other enterprise substituted for it, the farm revenue would have been reduced by \$1,420, expenses would have been reduced by \$220, and net revenue would have been reduced by \$1,200. (Expenses and net revenue would be adjusted by the value of added hired labor as indicated above.) The record shows further that to get the indicated increase in net revenue, 10.3 acres of land, 1,648 hours of labor, 443 hours of workstock, and the common crop equipment were employed. These facts the record shows. Any further information would require economic analyses and is not in the category of facts that can be obtained from the farm record. To include in the expenses the "costs" of the factors owned would require an appraisal of the next most remunerative uses of these factors with account taken of preference for leisure by the family labor and of differences in uncertainty. These "costs" in the case of owned factors are opportunity returns to the farm family, but are "costs" to this enterprise. If these "costs" were added to the expenses of cotton and thereby the expenses were increased to the extent that "net returns" were zero, it would not mean that the cotton enterprise did not increase the net farm revenue. It would mean that by using these factors to grow cotton, the net farm revenue was increased by an amount equal

to that which could have been derived from the next most remunerative use. If the "net returns," with opportunity "costs" added to the expenses, exceeded zero, it would mean that the farmer's net returns from using these resources to grow cotton were greater than such returns would have been, had these resources been used for any other purpose; if less than zero or a negative value, then the next best alternative would have added more to net farm revenue than did cotton. Thus, when opportunity "costs" are *economically correct* and are included with the expenses, any "net returns" above zero measure the extent to which the revenue from cotton exceeded that which would have been received from the next most remunerative uses of the resources; and under pure competition this measures the extent to which the revenue from cotton exceeded that which would have been necessary to bring forth the quantity produced.

In numerous cases the "market prices" are not likely to measure accurately the "opportunity costs" of these "factors"; this is because these "factors" are not exactly similar to those for which the "market price" exists; and further, if these quantities to which the "market price" is applied should go into the market, such prices most probably would be reduced.

Allocation of Overhead Costs

The basic problems involved in measuring the financial performance of any *individual enterprise* and in measuring supply functions of individual commodities may be clarified further by examination of the concept of "overhead costs." According to J. M. Clark in one of the earlier treatises:⁶

The term [overhead costs] is nowadays much used and variously defined; in fact, it covers an entire family of ideas, but they have one essential thing in common. They refer to costs that cannot be traced home and attributed to particular units of business in the same direct and obvious way in which, for example, leather can be traced to the shoes that are made from it. And most of the real problems involve one other fact: namely, that an increase or decrease in output does not involve a proportionate increase or decrease in cost.

Failure to take into account the *economic significance* of the different categories of expense included in Clark's concept of "overhead costs" has contributed to much of the confusion contained in the literature on farm accounting and "cost analysis." Often, sight of the real objectives has been lost in the search for tools with which to "allocate overhead costs"; whether or not the allocation contributes relevant information has been a neglected issue. Unfortunately, there has been a tendency to associate the "extent" or "detail" in the allocation of "expenses" or "costs" to specific products, or to a particular period of time with "completeness in regard to analysis," or with "accuracy of accounting," or with "usefulness of the analysis." According to Efferson: "For farm cost accounts, the principal purpose is

⁶ J. Maurice Clark, *Studies in the Economics of Overhead Costs*, The University of Chicago Press, Chicago, 1923, p. 1.

to supply complete information about each and every part of the farm business. . . . After these costs [joint and common costs] are determined, the major problem is the allocation of each to the productive enterprises in the most accurate way possible."⁷

Hopkins and Heady are not as optimistic as is Efferson: "Unfortunately, no method is available which will guarantee correct apportionment of overhead costs and joint costs. Several procedures can be followed as approximations."⁸ Hopkins and Heady outline methods for allocating such costs, but then state that in the case of a supplementary enterprise such allocations can lead to erroneous interpretations of the economic advantage of the enterprise, and that the goal in farm management is not to make a profit, but to use land, labor, and capital resources where they will make the most profit.⁹

For purposes of economic analysis, Clark's "Overhead Costs" contains several distinct categories of cost, viz., fixed costs, depreciation of assets, and common and joint costs.¹⁰ Where the objective is merely to compute net revenue of the farm as a whole for a given period of time, to file a tax return, or to settle accounts with other persons, this system of classification is not necessary.¹¹

Because of differences in relationships to supply, three systems of classification are useful in sub-grouping total "expenses" or total "costs" for purposes of economic analysis: (1) joint, common, and simple or direct; (2) fixed and variable; and (3) depreciation of assets used over more than one relevant period and factors entirely exhausted during the period. These systems are of course not mutually exclusive.

First, let us examine the groups which may be labeled "joint," "common," and "simple" or "direct."¹² Common and joint expenses are included in Clark's concept of overhead costs.

⁷ Efferson, *op. cit.*, pp. 251 and 258; see pp. 258-262 for methods of allocation suggested by Efferson.

⁸ John A. Hopkins and Earl O. Heady, *Farm Records* (Third Edition), The Iowa State College Press, Ames, 1949, p. 287.

⁹ *Ibid.*, pp. 288-289.

¹⁰ This sub-grouping of "overhead costs" is similar to the categories suggested by the Committee on Price Determination for the Conference on Price Research, *Cost Behavior and Price Policy*, National Bureau of Economic Research, New York, 1943. See especially Chapter IV, "Costs and Rates of Output: The Allocation of Fixed Costs Over Time," pp. 51-79, and Chapter VIII, "Allocation of Costs Among Products," pp. 170-188. Hopkins and Heady make no clear distinction among the various categories within this group: "Overhead costs are those which are not distinctly related to a single enterprise or portion of an enterprise. Ordinarily, they occur regardless of the quantity of production within a specified time period." Hopkins and Heady, *op. cit.*, p. 287.

¹¹ For further discussion, see S. V. Ciriacy-Wantrup, "Economics of Joint Costs in Agriculture," *this Journal*, Vol. XXIII, No. 4, Nov. 1941, especially pp. 796-818.

¹² Professor Bain has used this classification of "joint costs" and "common costs;" Joe S. Bain, *The Economics of the Pacific Coast Petroleum Industry, Part I: Market Structure*, University of California Press, Berkeley and Los Angeles, 1944, see especially pp. 84-111; also see George J. Cady, *Economics of Business Enterprise*, The Ronald Press Company, New York, 1950, pp. 184-192.

Joint expenses are those items which contribute to the production of two or more products in, from a practical viewpoint, fixed proportions (joint-supply). The expenses incurred in producing cotton lint and cottonseed may be considered as an example; the process of production cannot be varied, except possibly in the selection of varieties, to change the relationship between yield of lint and of seed until these are separated at the gin. Allocation of such expenses to particular products provides no relevant information.¹³ In all cases where items are produced in joint supply, the allocation of joint expenses to the specific items means that the "net returns" for the specific item *does not* truly measure the contribution of that item to the net farm revenue. In fact, there are no means of measuring the results obtained from one item independent of another if the one cannot be produced independently of the other. Any allocation of such expenses would be effort that not only failed to produce light but would increase the area of darkness. All of the expenses in the production of "joint products" are not necessarily joint expenses. For example, after the ginning process the expenses of marketing the seed and the lint of cotton may be entirely independent functions.

Common expenses are those items that contribute to the production of two or more products or enterprises, but under such circumstances that the particular combination of items of output may be controlled within very wide limits. For example, the barn may be used to house cattle from which both beef and milk are produced; land may be used to produce several crops; workstock and the tractor may be used to create many products, but within a wide range the quantity of particular plants and animals can be controlled. The abstract terms "joint" and "common" may be used with particular reference to "product" or to "enterprise" expenses. Thus, in regard to specific products the process of production in farming is such that the bulk of expenses are joint-product expenses; with respect to specific enterprises a very large proportion are common-enterprise expenses. Common expenses may be allocated to products or to enterprises in a rational manner at the margin but not in total.

Simple or direct expenses in this system of classification are those that contribute to the output of only one item—product or enterprise, whichever is relevant. These expenses in total may be allocated to products or to enterprises because each is independent of the other.

Next let us examine the concepts of *fixed and variable expenses*. The question may be asked, "Fixed or variable with respect to what?" The answer is, "Fixed in total or variable in total with respect to a particular output of a designated period." For accounting purposes the appropriate

¹³ Allocation of joint expenses would be analogous to the thirsty man who after drinking tried to ascertain what proportion of his thirst was satisfied by the hydrogen and what proportion by the oxygen!

period is the accounting year. In accounting, fixed expenses are that part of total expenses which would have had to be paid if the particular production during the accounting period had been reduced to zero—always an *ex post* view. In economic planning, an *ex ante* view, the pertinent period of production may not coincide with the accounting period. For example, in deciding at harvest time whether to harvest and sell tobacco or other crops, or to allow them to decay in the field, expenses that have already been incurred are no longer economically relevant; it will be economical to harvest the crop if the expected revenue exceeds the expected harvesting and selling expenses (the variable expenses) regardless of the magnitude of the expenses already incurred (fixed expenses).¹⁴ In this concept of fixed and variable expenses no particular item such as fertilizer, rent, or any other is always a fixed or a variable expense. Whether or not an item of expense is fixed or variable depends upon the conditions of the expense with respect to production during the appropriate period. Whether or not any allocation of variable expenses to specific products or enterprises would provide relevant information depends upon its further classification with respect to simple, common, or joint features. As for fixed expenses, allocation with respect to products and enterprises provides no relevant information, even though there are no technical difficulties of allocation in the case of simple fixed expenses.

A third classification within total expenses may be useful, because in any accounting period many of the factors are not completely exhausted during such a period, but are carried over and contribute to production in succeeding periods; whereas from a practical viewpoint other factors are exhausted during the accounting period. For example, cottonseed when planted contributes to the crop of a particular year but does not contribute to succeeding crops; but the tractor that is used on the crop of this year may be used to produce crops in succeeding years. In the case of the tractor, however, a particular quantity of fuel may contribute to production during only one period. The problem then is to decide what value of the expense of a factor that is used over more than one period to charge to the aggregate of products produced during the accounting period. In terms of economic analysis, this is part of the problem of long-run supply; and annual depreciation, particularly when based on original outlay, may hardly be relevant.¹⁵ Basically the problem of depreciation is one of allocation of expenses over time; whether or not it would be relevant to allocate deprecia-

¹⁴ At harvest time the short run "economic rent" is the difference between total market value and the *additional expenses* to be incurred in harvesting and selling. This problem carries significant implications in the realm of bargaining between labor and management at this stage in production, especially in cases of highly perishable products and where very short-sighted objectives might weigh heavily in the action.

¹⁵ For further insight into this problem, see John Maynard Keynes, *The General Theory of Employment, Interest and Money*, Harcourt, Brace, and Company, New York, 1936, "Appendix on User Cost," pp. 66-73.

tion to products or enterprises would depend upon its further characteristics with respect to fixed and variable, and simple, common and joint features.

No relationship between past expenses and revenues, no matter how they are computed, can be used exclusively to ascertain what a particular product or a particular enterprise will contribute to the financial success of the business in the future; such a task requires forward planning based on economic analysis of "opportunity income." Such a plan will always be "inaccurate"—*ex post* will not coincide with *ex ante*—at least to the extent that expected conditions fail to materialize or, if the plans are constructed by someone other than the farmer, to the extent that the analyst's knowledge of the farmer's objectives and technical understanding is inaccurate. Accounts alone, regardless of design or of arithmetic accuracy of computations, will not give the answer as to whether or not some other enterprise combination or some other factor combination would have yielded, or in the future would yield, a larger net revenue. When converted to an arithmetic average per unit of output or per unit of some input, such "net returns" in an accounting sense become even more limited as a measure of financial gain, because it is seldom that one would expect expenses per unit of output or per unit of an input factor to be independent of scale or of enterprise combinations. The pertinent question from the point of view of the individual farmer is this, how much did the particular item add to or subtract from the farm expenses and how much did it add to or subtract from the farm revenue? In planning, of course, the question is, how much is a particular change expected to add to or to reduce farm expenses and farm revenue?

Summary

If the record system were designed in accordance with the preceding concepts and if it were accurate, one could ascertain the amount of the net farm revenue or the contribution of the farm business to consumption and saving of the family. The quantities and to a limited extent the qualities of resources owned by the family and used in the business could be measured.¹⁶ These records would provide the data necessary for computing the effects that each enterprise had on farm revenue and on farm expenses. The information necessary for filing tax statements, and as much information as any record can provide for use in settling accounts and for ascertaining whether or not agreements with others had been carried out, would be contained in the accounts. This is all of the relevant information that can be obtained from a record of what has happened in the past. This would

¹⁶ For a person other than the individual concerned to derive "opportunity costs" or "opportunity income" for alternative factor employment, the person must know the capabilities and specific objectives or preference patterns of the farmer; for example, to estimate the expected response to changes one must know what the individuals concerned *would do*; what they *could do* is not sufficient.

not necessitate any "allocation" of expenses other than simple variable expenses which would present no problem; it would require a minimum of evaluation of items that had not been exchanged in the market during the accounting period. Depreciation of factors owned, appreciation of assets, and products produced on the farm and consumed by the family are classes of items that would enter into expenses or revenue whose values would not have been established by actual exchange. From the farmer's viewpoint these values might well be omitted and expressed in physical quantities as supplements to the net farm revenue computed with these items excluded. Cost and supply analysis in an economic sense, i.e., questions with respect to enterprise substitutions, factor substitution, and the behavior of farmers with regard to output, require an economic evaluation of alternative uses of resources. For such an analysis, accounts of physical inputs and outputs, and inventories may provide useful information; but such information is far from sufficient. The character of the problem or the questions is such that no set of empirical data is sufficient; such data must be supplemented by logical assumptions constructed from available and relevant observations and from logic.¹⁷

¹⁷ For further discussion of this statement, see Frank H. Knight, "Comment on Professor Parsons' Article," *this Journal*, February 1950, pp. 112-122.

A FRAMEWORK FOR LAND ECONOMICS— THE LONG VIEW*

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LAND has played various roles in economics. Like a true Shavian, land has enjoyed a most honorable and versatile career. It is one of the old tripartite divisions of factors—land, labor, and capital—a classification which made for economy in exposition but for an unsatisfactory analysis of the economy. The Physiocrats gave to land not only a leading role, but they also made it the hero of their scheme. The belief in the abundances of Nature, with rent the gift of God to the landowners, put land in a preferred position in the *Tableau Economique*. Ricardo and the older English economists who followed his casting also gave to land a key role but made it the villain of the piece. The concept of the niggardliness of Nature placed landowners in a strategic position in a community with a rapidly growing population. For Marx, the existing landlords became a unique species of capitalists of feudal vintage, but obsolete, and therefore soon to be replaced by genuine industrial capitalists. Again, land was to be cast as the unmitigated villain by Henry George, who saw it as the instrument that transfers the unearned social increment of economic progress to landlords.¹

With all of these glamorous roles to its credit, it may seem presumptuous, not to say a bit formidable, to endeavor to assign to land a less spectacular, or what is even more serious, a rather passive, pedestrian role in getting at the underlying economic conditions that give rise to the low productivity of human effort characterizing many communities in agriculture in the United States and in other technically advanced countries.

I have no desire to break any of the existing images for the sake of doing so, for to be a mere iconoclast is indeed an empty achievement. I realize and recognize the many worthwhile contributions that have come from students concentrating on land—analyzing land tenure, the economics of soil conservation, the utilization of land when it is large and indivisible as an input or when it is large and indivisible as an output and not priceable

* I have benefited from the comments and criticism of D. Gale Johnson, Glenn L. Johnson, Maurice C. Taylor, and James O. Bray. None, of course, carries any responsibility for what appears in this paper.

¹ To gain historical perspective, it is necessary to see the extent of, and reasons for, the declining economic importance of agricultural land. Land to produce farm products is no longer the limitational factor it once was; this declining dependency upon land is a consequence of the new and better production possibilities that have emerged in western communities, and of the changes that have occurred in community choice. No longer than a century and a half ago, about three fourths of the expenditures of most families was for food, and agricultural land was a major claimant of aggregate factor rewards. The productive services of agricultural land as an input in an economy such as that of the United States have declined in relative importance to a point where it is about 2.5 percent of the factor costs entering into our national income. The empirical evidence on this point and the elements of an economic explanation, as I see them, are the subject of another paper still in manuscript form.

by means of existing markets and similar problems—as may be seen from my remarks elsewhere.²

The particular problem to which this paper is addressed is the relation of land as a productive resource, that is, as an input, to other inputs and to outputs, and especially to the value of the output of the human agent in farming under conditions that have characterized the development of the American economy. More particularly, I am concerned about the economics of agricultural land in a period covering decades, during which the economy as a whole grows and develops in the sense that the real output of workers rises, not by some small percentage but one, two, or more fold as has been the case in the United States. (Colin Clark has ventured the statistic that the real national product per man-hour in the United States rose fivefold from 1870 to 1947.)³ I shall return, therefore, to the representation set forth in an earlier paper,⁴ in which I ventured an explanation of the differences in the per capita income and in the levels of living that have come to exist among communities in agriculture, namely, that these differences have arisen as a consequence of the way in which the economy of the United States has developed.

The purpose at hand is twofold: (1) to present a general hypothesis to explain certain observable effects of economic development upon agriculture and (2) to consider some of the existing beliefs regarding the effects of differences in land upon the value of the human effort as a cooperating agent.

1. *The Retardation Hypothesis*

My first task is to explain why major parts of agriculture fall behind in the procession of economic progress. At this point, I shall not review the empirical data which show that while some parts of agriculture, for example our major milk sheds, have not fallen behind substantially, other parts, for instance large areas situated to the south of the Corn Belt, have not managed to stay abreast as the American economy as a whole has moved forward in the value of its output per worker.

The following hypothesis is advanced to explain the particular retardation effects of economic development upon agriculture. The hypothesis consists of three parts as follows: (1) Economic development occurs in a specific locational matrix. There can be one or more such matrices in a particular economy. The process of economic development does not necessarily occur in the same way, at the same time, or at the same rate in different locational matrices and at different locations in the particular matrix (say, within

² On this point, may I suggest my review "Scope and Method in Agricultural Economics Research," *Journal of Political Economy*, Vol. 47, October, 1939, p. 709.

³ Colin Clark, "Economic Life in the Twentieth Century," *Measure*, Vol. I, Fall, 1950, p. 33.

⁴ "Reflections on Poverty within Agriculture," *Journal of Political Economy*, LVIII, February 1950.

the American economy). (2) These locational matrices are primarily industrial-urban in composition; the centers of these matrices in which economic development occurs are not mainly out in rural or farming areas, although some farming areas are situated more favorably than are others in relation to such centers. (3) The existing economic organization works best at or near the center of a particular matrix of economic development, and it also works best in those parts of agriculture which are situated favorably in relation to such a center; it works less satisfactorily in those parts of agriculture which are situated at the periphery of such a matrix.

It may be helpful to specify the kind of experiences that would not only cast doubt but would also invalidate this hypothesis. If our economic history were to indicate that economic development always occurred evenly and generally throughout the economy, it would deny the validity of the first proposition essential to the hypothesis. However, suppose the facts clearly show that the process is uneven and that there are particular locational matrices of economic growth and progress; but if our economic experience showed that farming areas were primarily the active centers of economic development or that all of them were fully as potent and important as the industrial-urban constellations, such facts would undermine the second part of the hypothesis. However, there is, I believe, general concurrence that our economic history strongly supports the first two parts of the hypothesis, but there probably is disagreement with regard to the third, namely, that the existing economic organization is less effective and efficient in locations at the periphery of a particular matrix of economic development than at its center. It is, therefore, on this proposition that our researches should concentrate to determine whether this part of the hypothesis is empirically valid.

On the positive side, the retardation effects that emerge from this formulation of economic development may be restated as follows: In the event the third proposition is consistent with empirical observations, the problem at hand is narrowed substantially and it becomes much more manageable. We can, then, concentrate our study on a set of particular "imperfections" in economic organization, particular in the sense that they can be traced back to the process of economic development as set forth in the first two propositions of the hypothesis. In short, in that case, the retardations are the consequences of particular "imperfections" of the existing economic organization, which in turn are results of economic development.

We may anticipate some of the major questions that will arise since we shall want to know the nature and significance of these particular "imperfections." Are they to be found primarily in the way the product markets or the factor markets work? Among the various product markets, which ones appear to perform the more satisfactorily, the markets of perishable products, such as milk, livestock, fresh fruits and vegetables, and the like, or the markets of such farm products as wheat, cotton, flaxseed, and others

—which usually have well established future markets?⁵ In the case of the factor markets, is it possible to determine how economic development affects the labor and capital markets, the extent to which each is under adverse pressure, and how each functions as a consequence?⁶

This is not the place to seek answers to these questions. They will serve, however, to put into focus the relevant elements of the problem for research as indicated by the hypotheses advanced. The rest of this paper is restricted to the task of pointing out some of the shortcomings of current approaches in land economics in explaining the low value productivity of the human agent in major parts of agriculture.

2. Land and the Output of Man

The matter before us may be put as a question: Are the natural and original differences in the physical properties of particular parcels of land employed for farming related in some consistent and necessary way to the differences in the value productivity of human agents in agriculture? This question is usually confined to land in farms on which the returns for human effort are low.

I shall endeavor to show that differences in the value of human effort in agriculture cannot be explained by the differences in land, and as a special case of this, that the low value productivity of and returns to the human agent, characteristic of many parts of agriculture, consisting of entire farming communities, are not to be explained by the natural and original differences in the land being farmed.

Some of the long established views may be briefly considered at this point. There is the idea of "poor" land and "good" land, a preliminary and quite elementary matter, so it would appear. To my knowledge, no satisfactory definition has emerged. Poor or good for what? Physical productivity per acre in itself is merely one isolated fact. Whether low or high in this regard it may, of course, be over- or underpriced, which is relevant and important information in an economic analysis. Since different parcels of land are made up of many different combinations of physical properties, on what physical basis does one classify land and in doing so achieve economic relevancy?⁷ There is the view that "poor" land results in poor farm-

⁵ Chapter 13, "Spot and Future Prices as Production Guides," *Production and Welfare of Agriculture* (New York: Macmillan, 1949) by the present writer, deals with major aspects of this problem.

⁶ Considered briefly in "Reflections on Poverty within Agriculture" already cited.

⁷ There is, so it seems to me, little point in our continuing to chase this butterfly. Parcels of land are simply too heterogeneous in their physical attributes that matter in economic production to permit meaningful aggregation. Take the elementary concept of supply—to say the supply of agricultural land in the United States has shifted to the right or left has no empirical content unless and until it is possible to measure and aggregate parcels of land. To do this on the basis of certain physical, chemical, and biological attributes, or some combination of these, appears to be quite impossible. If this is true, we are driven to certain indirect approaches using value components as weights. To use existing net rents or the going price of farm land may be useful for some purposes; but certainly not for determining the extent to which particular parcels are under- or overpriced relative to their value productivity.

ers. One reason given is that the less capable gravitate to so-called poor farms consisting of "poor" land, and conversely. There is no valid basis for this assertion.⁸ Another view holds that "poor" land necessarily pulls the returns for human effort down as a result of technical or institutional conditions. The belief is that such lands require virtually a fixed quantity of inputs of human effort and the resulting inflexibility necessarily gives rise to low returns for the human effort used on such farms. I shall consider this notion in some detail. It is also argued that it is more difficult to increase the land area of a farm (push out on the extensive margin) than it is to add capital forms to existing farms by more intensive operations. For any given short run, say, during one year, this distinction may have real relevance, but hardly in a long run context of decades. It may also appear that the increases in the value of particular sites or that the unanticipated increases in output achieved by farmers on particular land provide the necessary income to acquire machinery and other capital goods which are denied to farmers on other land. It is undoubtedly true that some such process occurs; I shall show, however, that the adverse consequences in such a situation arise from imperfections in the capital market and not from differences in land.

3. *Validity of Particular Economic Consequences Ascribed to Differences in Land*

Let me repeat that I am not endeavoring to explain the behavior of particular farmers in some particular short run setting. Although such problems are important, I shall lay them aside because I am here concerned with malallocations in resources that have come about slowly and, in the main, gradually over a period of decades in the particular setting that has characterized the economic development of the technically advanced western countries, such as the United States. As I shall point out below, circumstances which are inflexible during a given year can be quite flexible over a period of years; for instance, the supply of land available to particular farmers may be very inelastic presently while quite elastic in the setting under consideration. Let me also make explicit the following underlying assumptions: (1) I am not concerned about the internal economy of some isolated Robinson Crusoe farm. Instead, I shall assume that the farms under consideration are an integral part of a larger economy; accordingly, that they are not wholly self-contained as individual producing-consuming units. If this assumption is put aside, it is possible to have many different kinds of results. (2) As a corollary, I shall assume that product and factor markets exist and that both trade and factor transfer are possible, although none of these markets may function satisfactorily. (3) Lastly, I shall assume that the cultural-population mechanism does not by itself correct

⁸ See "Reflections on Poverty within Agriculture" already cited.

the particular malallocations in resources arising out of economic development; this means that the particular demographic type is such that it does not bring about factor-price equalization in a developing economy.⁹ My purpose in this representation is to study the relation of particular farms to the economy as a whole and to set the stage to analyze the effects of economic development (1) upon product and factor markets and (2) upon the cultural values, including the preferences that explain population growth and how these in turn affect the product and factor markets.

Since it is widely held that the observable low value productivity of the human agent in agriculture is a consequence of the land in such farms, and since the particular attributes of this land which are put in the position of "causes" are either technical or institutional in character, I find it necessary to examine this matter, at least briefly, before going on with the main issue. I cannot consider at this time all of the possible technical and institutional conditions that may be relevant; accordingly, in the observations that follow, I shall select certain special cases based on the most extreme technical and institutional conditions conceivable favorable to the belief that the particular low productivity of the human agent is caused by land. Although these cases will appear quite unrealistic, as they are in fact, my purpose in introducing them is to show that even under such extreme circumstances the argument of ascribing the low productivity of the human agent to land breaks down.

First, let us suppose we had the following *technical* circumstances: in one part of agriculture, it is technically impossible to vary the ratio of land and human effort employed, the proportion being fixed, say, 10 acres to 10 days of work per year; and in another part of agriculture, it is possible to combine these two classes of inputs in different proportions; furthermore, that these are the only inputs employed, that both parts produce the same products, that in period one the two parts happen to have the same value productivity for the inputs of human effort and that land used for farming is not abandoned in period two. Under these conditions, if a change were to occur in another sector of the economy that increased the value produc-

⁹ While the meaning of the first and the second of these assumptions is quite apparent, it may be necessary to indicate what is meant by the third. The cultural mechanism of a "pre-industrial" demographic population as I outlined it in "Reflections on Poverty within Agriculture," p. 14, may be instructive. "Let us take two communities of this demographic type with the same cultural values, including similar standards of living, and let us assume, further, that the fortunes of the one improve. To make this concrete, let the increase in production come from an irrigation project without cost to the community. Is it necessary for people to migrate from the less fortunate community to the one that has the windfall afforded by irrigation in order to attain factor-price equalization? The answer is that, even without a common market for either factors or products—that is, *without either migration or trade*, factor-price equalization will occur as a consequence of the upward surge in population in the community with the new irrigation project under the assumptions as I have formulated them. Factor-price equalization, however, cannot occur when the community benefiting from a windfall is of the advanced industrial demographic type and the other a pre-industrial community, unless a transfer of factors takes place."

tivity of human effort, and accordingly, its supply price without changing the price of the farm product under consideration, the following consequences may be indicated: farmers in that part of agriculture confronted by the technically fixed combination of inputs would find it impossible to adjust so as to bring up the earnings of human effort in line with the change. On the other hand, farmers in the other part would find it possible to recombine inputs and thus raise the value productivity of human effort to the new level.

Clearly, then, if farmers for technical reasons cannot alter the combination of these inputs, they cannot bring the earnings for human effort up to the new par regardless of whether the land is level or hilly, fertile or not. We may anticipate certain interpretations and arguments at this point. It may be held that this particular technical condition is a specific characteristic of "poor" land and therefore the above analysis becomes applicable to land having certain physical attributes which make it "poor" land. This would mean by definition "poor" land is subject to this technical condition. The question would then become one of the relevance of such a concept to fact; that is, can one empirically identify such land; does any exist? I doubt that such land exists in any long run context. I shall, therefore, not address myself to this kind of a situation because I do not believe that these particular technical conditions exist in farming either in the United States or elsewhere. Even if it were true, however, that a particular type of land, poor or otherwise, had this technical attribute, one can draw the adjustment process into a more general explanation by merely relaxing one of the above restrictions, that is, by permitting the land to be abandoned, a possibility that certainly is not inconsistent with experience.

A second situation might be considered briefly which would give quite similar results to those already outlined. Suppose we now take the following *institutional* circumstances; In one part of agriculture, human effort is perforce tied to the land in farming; the work, let us assume, is done by serfs, and what is more, it is legally mandatory to use precisely 10 days a year for each 10 acres of land being farmed; and in the other part of agriculture, no such institutional restrictions prevail; farm families are free as are individuals to leave and enter and to farm as much or as little land as each sees fit. All we have done, of course, is to substitute a specific institutional inflexibility for a technical inflexibility and with other restrictions the same, the consequences are also the same.¹⁰

In both of these situations, it is not the physical characteristics of the land that give rise to the result indicated, but it is the particular *technical* or *institutional* attribute postulated. This leaves only one course open,

¹⁰ Again to anticipate: Under conditions of mass unemployment, parts of the agricultural economy may well behave as if it were subject to some such institutional restriction. Also, in the case of a farm program which gives particular acreage allotments, as in tobacco, a special value, the institutional restriction is at least akin to that under discussion.

namely, to identify the particular technical or institutional attribute with, say, "poor" land. But even this identification in the case of the technical attribute is not sufficient, as I have already shown, as long as people can withdraw, say, from the "poor" land. In specifying the particular institutional arrangement, withdrawal is impossible by definition, and therefore, this arrangement would provide both necessary and sufficient conditions. The question would remain: Has this representation any relevancy to any known empirical situation? Obviously the particular institutional condition which I have set forth is not mandatory for farming on "poor" or any other kind of land.

I shall take it to be meaningful to represent land as an input that can be varied in relation to human effort and to various capital forms used in farming, where land is employed as an input by a particular firm operating over a long time span. Since so much confusion and misunderstanding seem to stem from the concept of land as an economic input, it will be necessary to indicate with some care what is meant by it in this context. Inasmuch as we are attempting to explain the decisions that are taken affecting the organization of farms in particular communities over a long period of time (decades instead of years), we would expect the "elasticity" of the "supply" of land available to particular farms to be relatively high, compared to a situation in which all of the farm land of an entire national economy such as that of the United States is taken as a given aggregate in a short time setting, say, during one year.¹¹ It is, of course, true that the supply of any major factor (input) for a country as a whole cannot be quickly and substantially altered in the aggregate; but it can be changed substantially in a decade or two. Even more so, a particular firm (farm), given a long time, span has open to it the possibility of varying substantially and sufficiently the amount of land it employs.

This variability may be seen from still another point of view. Suppose it were deemed necessary in an effort to "mobilize" the economy to reduce and eliminate the inefficiency that now characterizes many of the very small, low-output farms, and that this task of economic reorganization were to be done quickly, say, during the course of two or three years, it would undoubtedly be virtually impossible to bring about the required regrouping of parcels of land used for farming in so short a period and do it in a way that would be consistent with "freedom" and existing social and political processes. On the other hand, such an adjustment is readily possible over a period of decades. More specifically, a particular farm, say in the Piedmont, which is now too small to be efficient, requiring, among other things, more land inputs, has open to it the possibility over a

¹¹ This statement is an empirical proposition and therefore can be put to test by an appeal to experience. It would be possible and desirable to go farther and measure as precisely as one can the supply elasticity of land confronting particular farms in a particular community over, say, a decade.

long time span of increasing its size sufficiently to make it an efficient farm in combining land inputs with other inputs, provided, of course, that land is not submarginal and should not be abandoned for farming.¹²

It may be helpful at this point to restate briefly the import of the preceding argument. The possibility that technical conditions make it necessary to use land and the inputs of human effort in farming in some unalterable, fixed, proportion is ruled out because it does not seem to be true empirically. Likewise, the possibility that particular legal or other institutional conditions tie farm people to land in some fixed ratio is also dismissed as not being relevant to situations we are trying to explain. The process of economic development can best be represented as one that occurs over a long period of time consisting of decades; and in such a setting, the farms of a particular community have open to them the possibility of varying the quantity of land employed in farming, sufficiently so to adjust the combination of inputs to bring up the value productivity of the human agent consistent with the value of this input in the centers of economic development.¹³

I shall now return to the query: Are the natural and original differences in the physical properties of particular parcels of land employed in farming related in some consistent and necessary way to the differences in value productivity of human effort employed in farming?

If an economy were to attain a long run equilibrium in which all comparable inputs of human effort earned the same reward (allowing for preferences for various kinds of work), the earned real income of comparable human agents would be the same regardless of the differences in land. This situation would, therefore, provide a negative answer to our question. If, however, a disequilibrium were to exist and if one were to observe a strong correlation between differences in land and differences in income earned by the human agent with "poor" land associated with low incomes and with "good" land the converse, the observed relation would not necessarily depend upon the differences in land. Before taking up the economic logic underlying this statement, a few observations on the presumed correlations between "poor" land and low income may be in order.

Leaving aside the difficulties of defining "poor" and "good" land, it may be observed, as I have done elsewhere, that while the natural and original differences in land among major milksheds in the United States are real and impressive—some of it is easy to farm because it is level and, in addition, the land is fertile and highly productive while the land in other parts of

¹² See the excellent discussion of Professor John D. Black, "Notes on 'Poor Land,' and 'Submarginal Land,'" *this Journal*, Vol. XXVII (May, 1945) p. 345-74.

¹³ The problem is accordingly narrowed to that of determining why it is that this possibility is so imperfectly achieved in practice under conditions that have prevailed in the United States.

the same milkshed or in other entire milksheds is rough, hilly, and infertile—yet nowhere within such milksheds attached to major industrial-urban areas does one observe whole communities of farmers whose earnings for their own efforts are far below the American standard, as is the case in some other parts of agriculture. Or take the case of north central Iowa, which has soil that is level, rich, and highly productive, as is the soil of the heart of the Mississippi Delta; yet the two areas have for decades differed greatly in the value productivity for human effort. Similarly, some farming communities situated on poor land have a high output, while other farming communities on such land have a low output per worker. There is, however, no point in carrying these empirical observations further looking for correlations, for even if they did exist they would not suffice as an explanation.

(1) *Difficulty of Acquiring the Assets Necessary to Farm Efficiently.* It may be argued that farmers in a community located on "poor" land simply will not find it possible to acquire (buy, rent, or borrow) the machinery, buildings, fences, drainage, insecticides, fertilizers, and other such inputs, and for the community the roads, railroads, market and community facilities needed; while farmers situated in a community with "good" land can produce a surplus which makes it possible for them to buy the necessary inputs to farm efficiently. Empirically, it is undoubtedly true that when farmers receive additional income, they can and do acquire more assets of this kind, and these assets by and large have made such farms more efficient than they would otherwise have been.¹⁴

What we have here is a special case of the consequences (income effects) of windfall gains upon investment in an economy with an imperfect capital market. If capital rationing did not exist, it would be possible for farmers to borrow or rent these inputs; as it is, however, they frequently find it necessary to save enough out of their income to acquire the extra inputs needed to farm efficiently. Given an imperfect capital market,¹⁵ it follows that a windfall gain, regardless of the source, makes it possible for the recipient to acquire more assets. The windfall may come as a result of war-

¹⁴ Glenn L. Johnson of the faculty of the University of Kentucky has put this situation succinctly and effectively in a letter to the writer from which I quote with his permission: "In Kentucky, four counties placed mostly on soils of lime and shale origin just west of the first sandstone escarpment of the Appalachians may be compared with four adjoining counties to the east placed on the escarpment on less fertile soil of sand and shale origin. Madison, Clark, Montgomery, and Bath, mostly west of the escarpment, had level-of-living indexes in 1945 of 65, 96, 82 and 54. Estill, Powell, Menifee and Rowan, mostly east of the escarpment, had indexes in 1945 of 29, 31, 18 and 27. Incidentally, the belt dividing the two areas is not more than a few feet wide in some places. Why didn't the people east of the escarpment secure such components of economic progress as machines for productivity, schools for education and productivity, good roads for mobility, efficient markets, fertilizers, good seeds, etc.? The answer appears to be that they have never had land capable of producing a surplus above subsistence for reinvestment in such facilities."

¹⁵ Set forth in some detail in Chapter 12, "Capital Rationing, Uncertainty, and Farm Tenancy Reform," *Production and Welfare of Agriculture*, Theodore W. Schultz, (New York: Macmillan, 1949).

time profits,¹⁶ marriage, inheritance, owning a site that becomes more valuable over time, discovery of oil or some other minerals or for still other reasons. Such windfall gains have been quite important in agriculture from time to time; and to explain the savings of farm people and the capital formation in agriculture, it is necessary to give considerable weight to them. But it would be an error to believe that the imperfections in the capital market affect adversely only the farming operations of those farmers located on "poor" land, or that the differences in the physical properties of land give a satisfactory account of the windfall gains that have in the past come to farmers.

In short, the basic difficulties of acquiring the assets necessary to obtain the combination of inputs essential in organizing an efficient farm arises from the way in which the capital market functions. It does not arise from the natural and original differences in the physical properties of land used for farming. As a special case, particular differences in land may result in a windfall gain; and when this occurs, to that extent the realized gain will lessen the adverse effects of capital rationing.

(2) *Difficulty of Expanding the Land Area of Particular Farms.* This difficulty has already been considered in this paper. The supposed "inelasticity" of the "supply" of land confronting particular firms may exist in a setting of one or two years; but it is likely to turn out to be quite elastic when 10 or more years are taken as the frame of reference. Here, again, the more fundamental problems are to be found in the way the capital and labor markets function.

4. *The Locational Matrix Approach*

An old but altogether too narrow a formulation is to take the effects of a growing economy upon the value of particular sites. The so-called unearned increment going to those who own particular urban-industrial sites as a city develops has, of course, received a great deal of attention. Page Henry George and the Single Taxers! Although site value as such is much less important in farming than in urban-industrial affairs, it nevertheless is a factor. If we abstract from other considerations, what we have is the following: the growth of the economy increases the site value of particular farms; this makes such land more valuable and therefore "better"; the process thus converts "poor" land into "good" land. The distinction between "poor" land and "good" land no longer depends upon its

¹⁶ The much enlarged farm income of the decade of the forties in the United States has greatly improved the balance sheet of farmers generally, and as a consequence, there is at present much less capital rationing in the better situated, more prosperous parts of agriculture than at any time in the history of this country. The golden forties represent the biggest windfall gain ever to come to agriculture, sufficiently large, so it appears, to have corrected for the time being many of the adverse effects of the way in which the capital market "normally" functions.

natural and original physical properties but upon differences in the way the site value of land changes. In any event, here we have another special case of a windfall gain which we have already considered at some length.

In our guiding hypothesis we have presented a comprehensive approach which relates location to economic development. It provides, implicitly, a model in which the centers of economic development become the focal points from which to analyze both product and factor markets. It also takes account of the cultural mechanism affecting the preferences of people not only for goods and services produced by the economy, but also those that determine the population variable. The imperfections in the existing economic organization that give rise to situations where whole communities in agriculture indicate a low value productivity for the human agent (below par for the existing economy as a whole) in this formulation are analyzed as a function of economic development.

Whatever the role assigned to land in the unfolding drama of economic ideas, it will be played with the skill that only an experienced and versatile actor can achieve.

COMPETITIVE SITUATION OF EGYPTIAN COTTON IN THE AMERICAN MARKET*

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COTTON is the main textile fiber of the world, and in mill consumption it probably equals all other textile fibers combined. There are numerous varieties, differing widely in staple length and spinning quality. Owing to differences in climate, soil, methods of production and costs, no one country grows all varieties. This fact makes for international trade in cotton. The United States, the largest single producer in the world, imports less than two percent of its total cotton requirements.

On the basis of staple length, cotton may be divided into four groups, as follows:

1. *Very short cotton, not more than three fourths of an inch in length:* The United States' requirements of this cotton are supplied mainly by India and China.

2. *Short staple cotton, three fourths of an inch or more but less than one and one eighth inches:* The United States is self-sufficient in this cotton.

3. *Ordinary long staple cotton, one and one eighth inches or more but less than one and three eighths inches:* The United States produces the bulk of its requirements of this cotton and imports are relatively small.

4. *Extra long staple cotton, one and three eighths inches or longer:* The United States' requirements are supplied mainly by Egypt and Peru.

In the United States, the first two groups above are usually lumped together under the heading of short staple cotton (under one and one eighth inches), and the last two groups are lumped under the heading of long staple (one and one eighth inches and longer).¹

Cotton is Egypt's main export, representing, on an average, three quarters of the total exports in terms of value. It supports five times as many workers per acre as any other major Egyptian field crop. Eighty percent of the population depend directly upon cotton for their livelihood. The crop fits nicely into the country's agricultural rotation.²

The purpose of this research has been to develop and analyze the competitive position of Egyptian cotton in the American market and to indicate the extent to which the market can be influenced by the quality of cotton, by merchandising techniques applied to cotton, by differential of cotton prices, and by the governmental policies.

* The author is grateful to Professor Marvin A. Schaars for his advice and criticisms which have been offered with the greatest generosity at every stage in the writing of this thesis.

¹ United States Tariff Commission, *Supplemental Import Quota on Long Staple Cotton, Report to the President*, No. 158, Second Series, Washington, D. C., 1947.

² Read P. Dunn, Jr., *Cotton in Egypt*, National Cotton Council of America, Memphis, Tennessee, June 1949.

A "perfectly" competitive market in economic theory would presumably be one in which there were an infinite number of buyers and sellers dealing in an absolutely homogeneous commodity, with perfect knowledge on the part of all and with complete openness in all transactions. In an absolute sense such a market, of course, does not exist. The market in most commodities falls away from this perfection to a greater or lesser degree.¹ Thus, in determining the competitive situation of Egyptian cotton in the American market, the following facts should be considered.

Mild climatic conditions and soil fertility have enabled Egypt to produce a selection of the finest high yield cotton known in the world. Nature itself is not the only factor that has given Egyptian cotton this superiority over cotton from other countries. This superiority is due in large measure to the tremendous efforts exerted by both the people and the government. Without these ceaseless efforts, Egyptian cotton would deteriorate and lose most of its superior qualities. The regular periodic irrigation of the land, its careful drainage, the selection of seeds, the scientific breeding of new strains, the combatting of pests, the use of suitable fertilizers, the incessant and exhausting labor of the Egyptian peasant contributed a large share in raising the quality of Egyptian cotton to the standard it has attained.

Egypt has specialized in the production of the ordinary long and the extra long staple cottons of one and one eighth inches to one and nine sixteenths inches in staple length. It supplies 50 to 60 percent of the world's long staple cotton. In this field it is equalled by no other producing country. No effort is being made to produce the shorter staples such as predominate in other major cotton producing countries.

In fact, Egyptian cotton varieties constitute a unique category of cottons known to possess all the eight characteristics essential for the production of special types of cotton goods combining strength with beauty and fineness. These characteristics are: length of staple, fineness, suppleness, strength, silkiness, shine, cleanliness, and elasticity. Owing to the superior qualities which distinguish Egyptian cotton from all other types, some industries are dependent upon it and can find no substitute for it.

Substantial United States imports of extra long staple Egyptian cotton are essential for manufacturing sewing threads used by high speed power sewing machines, and for making fine yarns for other uses. The American domestic extra long staple crop consists entirely of the American-Egyptian cotton which is used in the production of mercerized yarns and fabrics. This cotton is not suitable for industrial sewing thread, by far the most important use of the imported Egyptian extra long staple cotton. Egyptian cotton is needed where strength and fineness are required; in these qualities it is quite superior to other cottons, as various tests have shown (Table I).

¹ Kenneth E. Boulding, *Economic Analysis*, Harper & Bros., New York, 1941.

TABLE 1. COTTON CLASSIFICATION, SPINNING AND FIBER TEST RESULTS FOR CERTAIN AMERICAN, EGYPTIAN, SUDANESE AND PERUVIAN LONG STAPLE COTTON

Place grown and variety	Classification		Spinning test results					Fiber test results				
	Grade	Staple length	Manufacturing waste		Yarn strength 60's yarn	Appearance		Fineness (weight per inch)	(Ma-turity) thin walled fibers	Chander strength per square inch	X-ray angle	
			Picker and card	Comber		Neps per square inch of card web	60's yarn					
		Inches	Percent	Percent	Pounds	Average	Grade	Micro-grams	Percent	1000 pounds	Degrees	
Pecos, Tex. SXP	1	1 $\frac{1}{8}$	11.7	15.8	51.8	.22	B	2.82	31	74.0	35.6	
Wilds 13	M	1 $\frac{1}{8}$	12.1	13.6	43.7	.12	B+	3.60	29	80.9	34.8	
Egypt Giza 7	1	1 $\frac{1}{8}$	11.4	21.1	45.3	.06	A	3.66	21	90.7	31.8	
Karnak	1 $\frac{1}{2}$	1 $\frac{1}{8}$	11.0	19.6	51.9	.11	B+	2.88	25	83.9	30.4	
Sudan Sudan S	1 $\frac{1}{2}$	1 $\frac{1}{8}$	10.6	17.3	53.5	.09	B	3.05	25	79.3	31.2	
Peru Pima	1	1 $\frac{1}{8}$	11.4	19.4	51.1	.43	B-	2.83	26	78.5	34.8	

Source: *Comparative Manufacturing Performance and Fiber Properties of Certain Long Staple Cottons*, prepared by the Food Distribution Administration at Clemson, S.C., July 1943.

American-Egyptian cotton has the inherent handicap of neppiness.⁴ These neps disqualify yarn for use in several products which take the largest quantities of extra long staple cotton. Of these, sewing thread is the most important. Neps in sewing thread constitute a barrier to smooth production on the garment assembly line; they cause stoppages by breaking the thread and even the needles. Neps cannot be tolerated in fine fabrics to be coated with rubber or other impermeable surfacing. Air pockets will form wherever neps occur. Even a minute air pocket will start a separation between fabric and coating which will gradually spread. This imperfection in the coated fabric greatly reduces its value, and in time of war may seriously retard production of material such as balloon cloth.

During the war, imported Egyptian cotton was restricted by United States Government order, to use on the manufacture of sewing thread and a few other strategic commodities, but American-Egyptian cotton, to the extent that it could meet the exacting specifications, went into other war needed materials.

Thus we can say that American extra long staple cotton (American-Egyptian cotton) cannot offer any serious competition to Egyptian cotton in certain of its end uses (industrial sewing thread, for example), because physical substitution is practically impossible. In this sense, we can say that Egyptian cotton does not compete with American cotton.

The volume of American-Egyptian cotton is generally too small to meet the needs of American manufacturers, therefore dependence upon imported long staple cotton is necessary. Even when the volume in terms of bales of cotton is as large as the normal baleage required, still the amount of long

⁴ A nep is a tiny kink in a fiber which appears as a tiny knot.

staple of the grades and special characteristics is insufficient to meet all needs. In general, no single variety of long staple cotton will satisfy all requirements of manufacturers of extra long staple cotton, but certain characteristics must be included in any commercial cotton. As a result, the manufacturers have depended on foreign sources where specific qualities desired may be obtained readily.

In view of the fact that the United States produces enough ordinary long staple Upland cotton (one and one eighth to one and three eighths inches) for its domestic industries, Egyptian ordinary long staple is demanded in negligible amounts (for blending purposes), and does not compete with the American cotton. Prices of Egyptian ordinary long staple landed at Charleston, S. C., are not so low as to effectively enable such imports to compete with the American crop. Hence, the only Egyptian cotton imported in substantial quantities is that of extra long staple length of which United States is a deficit producer.

On a cost of production basis, Egyptian cotton has a distinct competitive advantage in most years. The cost of producing cotton in the United States is approximately double the cost of producing Egyptian cotton. The average costs for the five years, 1938, 1939, 1942, 1945 and 1946 were about 11.84 cents per pound of lint for Egyptian cotton,⁵ while that of American cotton in general based on 1936-45 average yields was estimated to have been 22.5 cents per pound of lint. The estimated cost of producing American-Egyptian and ordinary long staple Upland cotton under irrigation, however, was 20.7 cents per pound of lint (average 1936-45).⁶

Even after shipping costs, the Egyptian export duty of 2.67 cents per pound (which will become 5.21 cents next season, 1951-52) and the American tariff of 3.5 cents per pound are added, the cost of Egyptian cotton laid down in eastern markets is below the cost of American cotton in most years. It appears that Egypt has a comparative cost advantage in producing cotton and, therefore, should be able to maintain its competitive position in the American market.

Because of staple length, character and careful preparation, Egyptian cotton commands a good price, which is, however, generally affected by the price movement of American cotton. Egyptian cotton has a more favorable price than American-Egyptian cotton or American Upland long staple cotton. From the 1942-43 season until the 1947-48 season, spot prices of Egyptian Karnak, Good, at Alexandria were considerably below the spot prices of American-Egyptian cotton, Grade 2, in producing areas and also below the spot prices of Upland cotton, one and one fourth inches, Middling at the

⁵ Read, P. Dunn, Jr., *op. cit.*

⁶ United States Department of Agriculture, Bureau of Agricultural Economics, Field Crop Statistics, *Cost of Producing Field Crops, 1946*, Washington, D. C., 1946.

10 designated markets in the United States. On close examination, it appears that since the 1930's Egyptian cotton prices reached lower levels relatively, and recovered less quickly, than did American cotton.

Egyptian cotton has met considerable competition on the American market from various synthetic fibers. This competition, particularly with rayon, is especially important in the production of fabrics for tires. Rayon of high dry strength has virtually displaced cotton fabrics made of imported Egyptian cotton in this industry. This was made possible technically by development, just before World War II, of a high tenacity rayon. This type of rayon is much stronger than ordinary rayon and has as high dry strength as cotton yarn. It is still at a disadvantage in wet strength.

During World War II, many specifications which formerly had required long staple cotton were altered to allow the use of synthetic fibers. Sewing thread and balloon cloth were among the few exceptions. With the constant improvement in synthetic fibers and the stable prices at which they are available, they may be substituted in increasing amounts for Egyptian extra long staple cotton in the future.

The competition of cottons produced elsewhere in the world with Egyptian cotton in the American market is not significant. The bulk of imported Peruvian cotton in the United States is of the Pima variety. The Peruvian Pima is small in volume and deficient in fiber strength. It cannot take the place of Egyptian cotton in those uses for which the Egyptian cotton is adapted.

Following the general trend of American economic foreign policy in liberalizing trade, the United States might well take action of its own, and, through measures jointly with the Egyptian government, promote freer trade in Egyptian cotton in the American market. There are four important trade barriers: the United States tariffs, quotas, fumigation of Egyptian cotton in the American ports, and Egyptian export duties on Egyptian cotton.

Egypt would like to export much more extra long staple cotton to the United States than it does, but is prevented by American quota restrictions. American spinners want Egyptian cotton and Egypt wants to sell them for dollars with which to buy American goods. Raising the quota would alleviate one of the Egyptian handicaps—a dollar shortage.

It is my view that the continued quota restriction of 91,000 bales annually upon imports of extra long staple cotton (cotton of a staple length of one and three eighths inches or longer) serves no useful purpose so far as the programs of the Department of Agriculture are concerned, nor will it encourage in any significant degree the production of extra long staple cotton in the United States. On the other hand, such a restriction further stimulates the use of synthetic fibers as a substitute for domestic and imported

cotton and encourages the importation of fabrics made from extra long staple cotton under reduced duties.

In view of these conclusions, I recommend the following proposals:

1. That extra long staple cotton should be removed from the quota restrictions. The United States Tariff Commission, at the urgent request of industry, reopened the investigation on long staple cotton in June 1949, limiting the investigation to the simple question of whether or not a quota on long staple cotton should be continued. The evidence at the hearings and the facts brought out by the investigation give no basis whatever, on the grounds stated in Section 22 of AAA of 1933, for the continuance of quota restrictions on extra long staple cotton.⁷ As a matter of fact, this conclusion is consistent with the findings and recommendations of the United States Tariff Commission, as to extra long staple cotton, contained in its Report to the President on May 14, 1948.

2. That other trade restrictions on Egyptian extra long staple cotton (customs barriers such as export duties) should be lifted soon, as they are detrimental to the interests of both countries. It would create goodwill and comply with the spirit of increasing world trade by eliminating quotas and reducing tariffs.

3. That steps should be taken by Egypt to import American short staple cotton for the manufacture of domestically used fabrics in return for expanded exports of Egyptian long staple cotton to the United States. The compulsory use of Egyptian cotton in the Egyptian textile industry, which is exclusively reserved abroad for high class goods, places Egyptian manufacturers at a disadvantage compared with foreign mills. American mills could also be assured of their needs of extra long staple cotton under this bilateral arrangement. Before the imposition of the United States tariff and the quota, Egypt exported annually about 200,000 bales of Egyptian cotton to the United States, but now only 91,000 bales are permitted for all long staple cotton under the quota.

4. That an International Cotton Agreement be entered into, with a view to assuring stability of markets, prices to the cotton producers, and steady supplies at reasonable prices to the cotton importers. The International Wheat Agreement might be looked upon as a precedent in this regard.

⁷ United States Tariff Commission, *The Import Quota on Long Staple Cotton, Supplemental Report 1949, Report to the President* No. 166, Second Series, Washington, D. C., 1949.

INDIVIDUAL VS. GROUP COMMODITY RESERVES FOR PRICE STABILIZATION

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A NUMBER of economists could readily be cited who believe that as things are, after a renewed round of defense expenditure prosperity, another major depression is sooner or later inevitable.¹ We have not done enough in revising and strengthening our economic institutions to have any real confidence that our market economy will henceforth be immune from severe depressions. However, not all economists would accept as complete the Douglas Committee report² which in its first sentence sets forth its thesis as follows: "We recommend not only that appropriate, vigorous, and coordinated monetary, credit, and fiscal policies be employed to promote the purposes of the Employment Act, but also that such policies constitute the Government's primary and principle method of promoting those purposes." Nor would all economists agree with the exclusive dichotomy of alternatives involved in a review³ of the Committee's report which summarizes that: "The Committee favors the more impersonal and democratic approach through the money flow over more dictatorial approaches through direct intervention in the economic behavior of individuals . . . the Committee believes that the government's part in moderating the business cycle should be principally through its influence on national income and the volume of money rather than through the use of direct controls over prices, wages, materials, and other phases of economic life."

Specifically, in addition to such measures as those suggested by the Douglas Committee, a number of economists have come increasingly to believe that commodity reserves can be used as a democratic, indirect, and impersonal influence on the stability of our market economy under varying conditions, with no necessary connotations of direct controls or dictatorial intervention. Recognition of this—mainly of a negative sort—is taken in the recent report by a subcommittee of the American Economic Association on the problem of economic instability.⁴

As with the Douglas Committee, this report likewise stresses fiscal and monetary controls as tools to be used to help avoid mass unemployment

¹ As representative, cf. Roy F. Harrod in *Foreign Affairs*, July, 1949, "Measures to Prevent a Slump," page 632: "Nothing has happened since 1939 to make it seem any less likely that boom and slump will continue to follow one another as of old. The great postwar boom suggests that, sooner or later, we may be faced with a tendency toward an unprecedented slump."

² *Report by the Subcommittee on Monetary, Credit and Fiscal Policies of the Joint Committee on the Economic Report*, Senator Paul H. Douglas, Chairman, published in January, 1950.

³ By E. A. Goldenweiser, "Douglas Committee Report," *American Economic Review*, Vol. XL, June, 1950, p. 389.

⁴ "The Problem of Economic Instability," prepared by a subcommittee of the Committee on Public Issues, *American Economic Review*, Vol. XL, Sept., 1950, pp. 505-538.

and major fluctuations in the price level, while maintaining steady growth in production, in peacetime in the United States. The report favors both general price-level stabilization and flexibility of relative prices of individual commodities. Commodity-reserve-currency ("Graham Plan") is mentioned as a proposal which needs further exploration and appraisal, particularly with respect to the make-up of the "composite-commodity." Individual commodity reserves are not mentioned, unless by implication in vetoing producer organization sector-stabilization (p. 517); and individual price stabilization is opposed on the grounds: "Marked stickiness or rigidity of particular prices may be an important factor impeding dynamic adjustment and contributing to over-all economic instability" (p. 537). However: "According to another view, the government . . . would establish selective price and wage controls and rationing and allocation procedures in key sectors of the economy, thus securing a substantial measure of influence over the behavior of prices, wages, and profits" (p. 538). The question may be asked: Why not include commodity reserves and commodity price stabilization, whether on an individual or group basis, as another alternate view? They too, as will be shown, can be part of a "mixed society" (p. 507), do not require "extensive government directives" (p. 508), and would not "negate basic freedoms" (p. 517).

In the still scanty but growing literature on commodity reserves,⁵ general agreement may be observed on these and certain other points or acceptances. However, there are also certain cleavages. The most general point of agreement is teleological: to employ commodity stockpiling as a mechanism to reduce market price fluctuations of primary commodities. In travelling this road the commodity reserve advocates immediately part company from: (a) those who find merit in uninhibited market price fluctuations; (b) those who find such fluctuations less undesirable than measures calculated to curtail them; and (c) those who seek to reduce them, but who eschew commodity reserves as an instrumentality. After this initial division, the advocates of commodity reserves in turn part company from one another. Each individual or small group explores a separate fork of the rocky road. Thus no stone may remain unturned, or in some cases unthrown, in the search for knowledge (or best opinion).

Most commodity reserve advocates seek to serve a contracyclical purpose; but some are content with buffer-stocks aimed at an "ever-normal

⁵ A partial bibliography includes: M. K. Bennett and Associates, *International Commodity Stockpiling as an Economic Stabilizer*, Stanford University Press, 1949; *Planning and Paying for Full Employment*, edited by Abba P. Lerner and Frank D. Graham, Princeton University Press, 1946; Benjamin Graham, *World Commodities and World Currency*, New York, 1944; L. St. Clare Grondona, *National Reserves for Safety and Stabilization*, London, 1939; *Report of the Committee on Foreign Economic Relations*, W. W. Riefler, Chairman, Twentieth Century Fund, New York, 1946; T. W. Schulz, *Production and Welfare Agriculture*, New York, 1949. Some of these books contain references to the more extensive periodical literature, and some of the authors have earlier works on the subject.

granary" goal of reducing the year-to-year price fluctuations of certain commodities, with no necessary relation to the general business cycle. Some seek to have commodity reserves serve an allied purpose as stockpiles against any contingency of disaster, whether in war or in peace, and point to the desirability of huge reserves of major basic commodities at times such as the present; but others regard security stocks as incompatible with contracyclical activity, especially on an international scale; and others are silent or neutral on the subject.⁶

There are also wide variations of opinion as to which commodities should be stored, the determination of the amount of each, the time for which they are to be held, when they are to be sold, and how they are to be financed. Some economists favor automaticity of operation, while others prefer to rely on administrative judgment. Some favor conservative finance by issuing gilt edge bonds, some prefer to issue new money, and still others advocate direct monetization of the commodity reserves themselves as the equivalent of gold.⁷ Some believe the commodity reserves will prove to be largely or wholly self-financing, through differentials between buying and selling prices exceeding the cost of storage for the time the commodities are held. Others believe the stockpile and storage program may be quite costly as a necessary government expenditure for the common good, but the resulting increase of economic stability will be well worth the expense.

Commodity reserve advocates can largely be numbered, explicitly or implicitly, among those who urge a stabilized general price level. However, this need not necessarily be the case. For example, those who specify buying and selling activities when the market price is below or above certain percentages of a predetermined level could calculate their index, and shift it periodically, if they wished, in terms of either a gently rising price level, or a slowly falling price level, instead of a stable general price level. Whether the base is to shift or not, a more stable general price level, at least for a time, is widely ap-

⁶ See Bennett and Associates, *op. cit.* Appendix, Note E, pp. 178-188, for a concise summary of a number of proposals for commodity reserves.

⁷ Monetization of commodity reserves has been suggested by Benjamin Graham (*op. cit.*) and approved by others—and strongly disapproved by still others, some of whom, such as Bennett and Associates, advocate commodity reserves. My present views on the monetary aspect of Graham's proposals are that it is a distraction from more important matters. Its main appeal is a promise to finance the stockpile without borrowing or taxation. But since Graham estimates the total investment at only \$5 to \$7 billion in terms of 1937 prices, the addition of that amount—or twice it, at today's prices—to the world's money supply is relatively unimportant. Even if regarded as the full equivalent to a net addition of that amount of gold to central bank reserves, its importance is not at all preponderant. There would still remain the major administrative problem of having our credit currency well managed, so the value of money will remain stable, or will move only in the direction and to the degree that we decide in advance. Moreover, there appears to be more vice than virtue in schemes for self-finance of stockpiles. Abuses can more easily creep into schemes which are not costing anything in direct finance. Certainly the social cost must be paid, whether the monetary cost is distributed by monetizing the commodity reserves as proposed by Graham, or by making money profits through buying low and selling high, as suggested alike by Graham, Bennett, Riefler and others. Perhaps it would be a much better augur for sound operation to realize both the monetary and the social costs as direct charges, with results worth the costs.

proved, and sought. But many of those who favor commodity reserves as a mechanism to achieve a more stable general price level can still object vehemently to a stabilized price for an individual commodity. Here is one of the most basic cleavages of all: Should the prices of individual commodities be stabilized? Or should stabilization be in terms of a general price level? Putting it in slightly different terms: Should commodity reserve operations be in terms of individual commodities? Or should they be in terms of a multiple-commodity-unit or market basket?

Judging by the reactions of some economists and others to events of recent decades, it is quite possible that in the future increased use will be made of commodity reserves in our complex exchange economy. Concern regarding the range of prices and quantity fluctuations of primary commodities over the business cycle gives evidence of this. It is well known⁸ that commodities of inelastic demand and inelastic supply, such as basic agricultural products, experience sharp and deep declines of prices during economic depressions; while those with inelastic demand for a certain quantity, and elastic supply, such as certain metals and semi-processed goods, maintain their prices, but curtail output drastically. When alternative employment is not available, this latter case results in great unemployment of labor, while incomes decline sharply in the former. On the other hand, there is also concern over the shortages and price rises whenever an emergency occurs. The implications of the financial efficiency of small inventories to individual firms are not favorable here, to say nothing of the broader interests of the commonwealth. A beginning program of stockpiling certain strategic materials is only a partial answer.

A fruitful survey might be made of commodity reserve experiences and proposals in terms of the various categories mentioned above. Also, the categories themselves could be made the subject of a critical analysis. In the remainder of this paper a study will be undertaken of just one of them—individual versus group commodity reserves for price stabilization.

II

Prominent among those who advocate multiple-commodity-unit reserves, or general price level stabilization, mention may be made of Abba P. Lerner, Benjamin Graham, F. A. Hayek, M. K. Bennett, and the late Frank D. Graham.

On the other hand, individual commodity reserves and individual commodity price stabilization are advocated by N. T. Bacon, B. Baruch, J. D. Black and S. S. Tsou, L. S. Grondona, A. N. Hansen, R. F. Harrod, J. M. Keynes, W. W. Riefler, T. W. Schulz, and J. Viner, also by the House of Rep-

⁸ As mentioned by B. F. Haley, "The Relation Between Cartel Policy and Commodity Agreement Policy," *American Economic Review*, Vol. XXXVI, May 1946, pp. 767. See also footnote 20, below.

representatives Special Committee 79th Congress, the Havana Charter of ITO, the Orr Plan of FAO, the Committee on Foreign Economic Relations of the Twentieth Century Fund, and the Delegation on Economic Depressions of the League of Nations.

Preponderance of opinion one way or the other, of course, proves nothing, necessarily. When Alfred Marshall proposed symetallism as the monetary standard for Britain, for example, the Gold and Silver Commission agreed that the plan was sound and workable, but probably would be difficult to explain to the public, so gold monometallism was favored, instead. Multiple-commodity-unit reserves may be decided against on comparable grounds, implicitly if not explicitly.

Multiple-commodity-unit reserve advocates aim to stabilize the general price level, but they insist that individual prices be left unstabilized so that the automatic market price, production and profit controls of demand and supply in a free market will operate. "As distinct from the problem of a stable general price level there is the problem of the flexibility of individual prices of products and production factors. They should not be prevented from changing in response to changing conditions of demand and supply. The point is stressed by Lerner and Graham."⁹

For storable standard raw materials, the late Frank D. Graham advocated a Federal Reserve Corporation, stating: "The FRC's offer to purchase and sell titles to representative bales of raw materials, at a fixed price, would automatically stabilize the raw material sector of the price level, but the prices of the several commodities would vary in the usual fashion, if less chaotically, in response to the changes in the specific demand-supply situation. To all such changes of price the FRC would be indifferent, since it would be involved only in the price of representative bales taken as units, which would be unchanging. . . . The bales would never, of course, be assembled as such. . . . The FRC would deal only in titles to these goods and it is these titles, only, that would be assembled in composite units."¹⁰ The commodity reservoir proposals of A. P. Lerner, he tells us himself, are quite similar to those of F. D. Graham and "an integration of the two approaches is possible in spite of many minor differences." It should be noted, however, that Lerner provides for temporary stabilization of individual prices.¹¹

Benjamin Graham proposes, briefly, to set up an international agency to

⁹ Lerner and Graham, *op. cit.*, p. 22, in the introductory survey essay by Albert Halasi. Some important semantic differences, perhaps unconscious, are involved here. We want a *stable* general price level, but we also want *flexibility* of individual prices—both semantically "good" words. We do not want *violent fluctuations* or *instability* of the general price level, nor do we want *inflexible*, *rigid*, *sticky* or *frozen* individual prices—all semantically "bad" words. Does the desirability of flexibility of individual prices mean that we are not adverse to violent fluctuations and instability of individual prices of products and production factors? And does a stable general price level mean that we are indifferent to its being inflexible, sticky, rigid, or frozen? And cannot stability of individual prices also be benign?

¹⁰ Lerner and Graham, *op. cit.*, p. 53.

¹¹ Lerner and Graham, *op. cit.* pp. 200, 203.

purchase, in appropriate quantities to make up composite units, some 15 specified world commodities (or 25, alternately) when their weighted average price falls to 95 percent of an agreed base price, and to sell whenever their composite price advances to 105 percent of the base.¹² He is fully aware that purchases for the commodity-unit may tend toward undue price rises for commodities in short supply, but he believes this can be prevented by giving his International Commodity Corporation authority to sell out spot commodities whenever they can be replaced more cheaply by future contracts. Moreover, when the general price level is fairly stable, he regards individual commodity price fluctuations as essentially self-correcting. But he does provide, in an auxiliary proposal, for individual price support for especially weak commodities.¹³

In 1945 the Food Research Institute of Stanford University undertook an over-all evaluation of Benjamin Graham's commodity reserve proposal as set forth in *World Commodities and World Currency*. This study by M. K. Bennett and Associates, published in 1949,¹⁴ concludes by recommending a considerably modified Commodity Reserve System, with a commodity-unit of 21 world trade commodities, as one among several possible synchronized contracyclical devices. It would be limited in its scope of operations to "a single cycle of recession-depression-recovery-boom, but thereafter to be liquidated, revised or renewed in the light of its experience and performance."¹⁵ The 21 commodities suggested accounted for 26 percent of the total value of world export trade in 1935, and for nearly 44 percent in terms other than manufactured goods. "The principal burden of financing might be carried by loan operations on gilt-edged security markets;" and the funds necessary to finance purchases are estimated at about \$12 billion at average 1935-38 prices, which now "might reasonably be forecast at not more than twice this, say \$20-\$25 billion."¹⁶

No purchasing operations would be undertaken under Bennett's proposal during a war-peace transitional price decline. It would be permissible for the operating agency to begin purchase operations when in a non-transi-

¹² *World Commodities and World Currency*, pp. 42-43. The 15-commodity-unit, to which Graham gives his major attention, is composed of wheat, corn, sugar, cotton, wool, tobacco, coffee, tea, rubber, wood pulp, copper, tin, petroleum, coal, and pig iron.

¹³ *Op. cit.*, pp. 52-53.

¹⁴ M. K. Bennett and Associates, *op. cit.*, especially Ch. 10.

¹⁵ *Op. cit.*, p. 131. The 21-commodity-unit of Bennett and Associates contains 12 of the 15 commodities suggested by Graham—wheat (and flour), corn, sugar, cotton (raw), wool, tobacco (raw), coffee, tea, rubber, wood pulp, copper, tin (and ore)—but tentatively excludes coal, petroleum, and pig iron because the probable costs of storage appear to be unduly high. (This Benjamin Graham, in turn, questions and objects that this will change the relative weights of agricultural and non-agricultural commodities in the unit.) Nine other commodities are added: rice, peanuts, linseed, (plus other items in addition to peanuts and linseed, if heavier representation of fats and oilseeds should be regarded as desirable), cocoa (raw), silk (raw), jute (raw, perhaps plus burlap and jute sacks), lumber (except pulpwood), hides (cattle), and lead. The amount of each commodity in the unit would be determined by its relative value in world trade. (pp. 106-108, 112-115, 176-177, 196).

¹⁶ *Op. cit.*, pp. 56 and 146.

tional (peacetime) economic recession the price index of the commodity-unit had fallen, on the average for a full calendar month, by 20 percent or more from a 15-month moving average, provided this takes place within 18 months of the final month included in the moving average (which itself should not include any part of a war-peace transitional price decline). It would be mandatory for purchase operations to begin when, with the same provisos, the price index of the commodity-unit had fallen by 35 percent. "Under such rules a CRS existing, say, in 1919 could not have begun operations during the decline of 1920-21, that decline being a transitional one; it would have been obliged to purchase sometime during the middle of 1930 in the great price decline from October 1929 to October 1931; and it would have had the choice of purchasing or of not purchasing in the smaller price decline beginning in 1937 and extending through 1938 and into 1939 to the outbreak of World War II." On the selling side: "An operating agency might reasonably be *permitted* to sell accumulated stocks when the guiding price index had risen at least 15 percent above the earlier buying level, and *obliged* to sell when the guiding price index had risen 30 percent above the buying level—the speed of the rise being ignored."¹⁷

As with Benjamin Graham and Frank Graham, *individual* commodity price stabilization is thus rejected by Bennett and Associates in favor of stabilization of a *general* price level for the multi-commodity-unit, but with a significant qualification: "We have little confidence in single-commodity buffer-stock schemes, at least as typically conceived." Those last five words can be important. "So far as interwar experience with commodity controls throws any light, it would appear that single-commodity buffer-stock ventures would be likely either to end unhappily or to be rescued from an unhappy outcome by crop failure or war. The typical single-commodity buffer-stock scheme has seemed in fact to invite a flow of resources to the sheltered item, a curtailment of demand for it, and consequent financial breakdown. Government recourse to restraint of production has then tended to emerge as the ultimate way out. The probable consequences, we think, need not loom as large in appraisal of the multiple-commodity buffer-stock scheme outlined above."¹⁸

This same fear of inability to control single-commodity buffer-stocks is voiced also by C. D. Calsoyas,¹⁹ who states: "In connection with cyclical

¹⁷ *Op. cit.*, p. 131.

¹⁸ *Op. cit.*, p. 136-137.

¹⁹ C. D. Calsoyas, "Commodity Currency and Storage," *American Economic Review*, Vol. XXXVIII, June, 1948, p. 345. Calsoyas is concerned mainly in inveighing against commodity reserve currency in favor of a nominalistic or managed credit currency. As stated above, that matter is not at issue in this paper; but it is of interest here that in the main body of his paper, except for limited stockpiles of strategic military materials, Calsoyas condemns commodity reserves in general as "tremendous vermiculate (which means worm-eaten—R.J.S.) pyramids of raw materials . . . raised as monuments to commodity reserve currency." (p. 349). Then at the end of his paper, with a reference to Riefler's studies on commodity reserves (Riefler, *op. cit.*) he concludes that: "The storage principle will come into use in pre-

instability and the imbalance of agricultural production, the proponents of the plan (Benjamin Graham and Frank D. Graham) draw an emphatic distinction between the stabilization of raw material prices by single commodities and by the commodities of their composite unit. Their argument, which has validity in present political circumstances, states that individual raw material producing interests would be too strong to allow stabilization of the price of their commodity without the adoption of restrictive policies to maintain excessive prices."

We do not question the historical soundness of Bennett and Calsoyas on the desire and the power of each organized group of producers to secure a high support price for their product. But we can question whether this need continue to be decisive.²⁰ And the mechanism to bring specific commodity prices into "line" is not to abandon reserves nor to reduce them. Rather, it might well be that the answer lies in greatly increasing the reserve for each specified commodity. If we have huge reserves of a primary commodity on hand, producer groups may be much less effective in their political pressure to obtain or retain stabilization at excessive price levels.

Recent experience with certain farm product price supports seems to indicate that huge reserves vitiate excessive support prices. If we had a five-year supply of cotton in storage, instead of just a one-year supply, even the cotton state Congressmen would be hard put to justify an increase in the stabilized "mint" price for cotton. Nor should a well-stored, rotated, five-year supply of a series of major basic commodities terrify us. Rather, it is economic security and stability of the most fundamental nature, well worth the social cost of storage. As the late Frank D. Graham has aptly said: "It is high time for economists, therefore, and for the public at large, to refuse to be frightened by the in-any-case not unwelcome bogey of bursting barns and exuberant warehouses."²¹

venting wide swings in raw material prices due to uncontrollable factors in the supply situation of individual commodities and as an anti-cycle policy" (p. 352). Those of us who advocate individual commodity reserves for price stabilization may perhaps gratefully conclude that individual commodity reserves under proper storage techniques do not necessarily qualify as "vermiculate pyramids." One might think this would even apply to the multiple-commodity-unit reserves of Bennett and Associates, since they are not to be monetized. But not so, as Calsoyas makes clear in a review of the Bennett and Associates book (*American Economic Review*, Vol. XL, Sept. 1950, p. 676-678), since producers of individual commodities will not suffer low prices in silence just because the general price level is stable, and also because purchases of commodities in short supply for the community-unit, and the reverse, would tend to introduce artificial instability into the prices of these commodities and "a great deal can be said against artificially inducing the collapse of one market or enhancing the profitability of others through composite-unit operations."

²⁰ See also Calsoyas in a negative review of Bennett's book, *American Economic Review*, Vol. XL, Sept. 1950, pp. 676-678: "An international agency should be established to deal in single commodities . . . also have a contracyclical effect. . . . It must be recognized that producers will make their interests felt in open or devious ways . . . to assert their reasonable or extravagant claims. They should be directly confronted by a strong international agency designed to achieve a moving stability in the prices of the world's most important raw materials."

²¹ In a "Reply" in the *Journal of Political Economy*, Vol. LI, Feb. 1943, p. 75.

It is urged by Bennett and Associates in favor of multiple-commodity-unit price-index stabilization that producers of individual commodities "would therefore have hardly more of a basis for reckoning the probable price of any single commodity than they would have in the absence of a CRS in operation; and price relationships between commodities would not be appreciably more subject to advance calculation."²² Also, this "would tend rather strongly to minimize the stimulus afforded producers to expand output and consumers to reduce consumption of the included commodities. Individual prices would move at levels and within ranges altogether unspecified and undetermined by the CRS except in so far as purchases and sales of stocks, for the most part on an automatic basis itself largely predictable, would dictate."²³

This is to make a virtue of the instability and uncertainty of the price of each included commodity. It seems to be motivated by a fear of encouraging production of a sheltered commodity by guaranteeing it too high a price, which also discourages consumption. Much more fearful for both producers and consumers, it would seem, are the data Bennett and Associates present on individual price rises and declines which do not follow the general price trend.²⁴ For example, for their 21-commodity-unit there was a 21 percent general price decline in the 1937-38 recession. The dispersion of individual commodity prices shows that some ran counter to the general decline and increased as much as 21 percent, while others decreased even more, as much as 45 percent. Yet, as quoted above, purchasing operations of commodity-units by their CRS would have been optional for that recession. To this writer, their data demonstrate the need for individual commodity price stabilization.²⁵

Bennett and Associates are aware of the danger that: "Buying and selling operations alike, under the commodity-unit principle, might have the effect of accentuating price dispersion." But they argue that "not much can be said in support of the idea that there is or ought to be a persisting relationship of the price of one commodity to any other." However, it is conceded in a footnote: "The idea nevertheless finds great favor. It underlies the popularity of the doctrine of parity prices for farm products in the United States."²⁶ This is a political reality which economists cannot overlook. However, on the above and other grounds, Bennett and Associates

²² Bennett and Associates, *op. cit.*, p. 138.

²³ *Op. cit.*, pp. 137-138.

²⁴ *Op. cit.*, p. 120.

²⁵ My own predilection is for a coordinated series of national and international reserves of major basic commodities, perhaps as much as a five-year supply of each, with purchases and sales in any quantities at a long-maintained, bulk-line, "mint" price for each—as with the gold reserve and the mint price for gold under the full gold standard. (See R. J. Scanlan, "The Economic Reserve System," *Free World—now United Nations World*—Vol. 6, Sept. 1943, pp. 208-215.) The difficulties to be overcome in determining and in making infrequent changes of the "mint" price for each individual commodity are readily conceded.

²⁶ *Op. cit.*, pp. 121-122.

quickly reject the plan of buying each individual commodity whenever its price is down 20 percent below a long-term moving average for that commodity, and selling when its price rises to 20 percent above the average, as "suggested by the League of Nations Delegation on Economic Depression (1945), and later modified by Riefler (1946), who was its chairman."²⁷ Nor would an established equilibrium price for each commodity be any help as a standard, "largely because of the inevitable uncertainty that surrounds any concept of 'proper' or 'normal' relationships between commodity prices. . . ." Also: "The task of reasoned and close estimate of equilibrium price of a single important raw material (or of a group of them) seems to us beyond the powers of scientific analysis." They object to any "concession to the desirability of preserving historical price relationships"; and they reject "the assumption that price relationships in an antecedent period were such as to be appropriate for a future period." More important, in their opinion, since the primary objective of their modified CRS is contracyclical, individual commodity price stabilization is objectionable because in some cases it might run counter, "for under a rule of purchasing any commodity when its price was 20 percent below an equilibrium price, it is conceivable that purchases would not be concentrated in time but would occur in any stage of an economic cycle."²⁸

The point of view of those who favor individual commodity price stabilization is that any producer of a primary commodity who experiences a price drop of 20 percent is in a depression in his own industry; and it may well be better to institute contra-depression activity for an individual industry, on a pattern available to other major basic industries as they may in turn need it, instead of waiting until the depression spreads. Thus, rather than interfering with contracyclical controls of the general cycle, as Bennett and Associates fear, individual commodity price stabilization on a coordinated basis, by checking depressions in individual industries, may tend to prevent cycles from developing which would need contracyclical activity. Nor need we retain a 35 or 40 percent or larger price range for primary commodities, in tribute to the notion that individual price instability is a prerequisite of a free market. A stabilized, bulk-line, "mint" price for each commodity included in a coordinated series of commodity reserves—subject to change only after long advance notice, due to secular trend, technological progress, competition from substitutes, etc.—can bulwark, rather than undermine, the basic allocation and rationing function of the price system in an essentially private enterprise economy. Nor is it new and untried. Rather, it is an established part of our price system, even if hitherto applied only to our monetary metal, the central bank rediscount rate, and the prices charged by regulated public utilities.

²⁷ *Op. cit.*, p. 123 and Appendix, Note E. See also Riefler, *op. cit.*

²⁸ *Op. cit.*, pp. 122-123.

Also, in a complex exchange economy it is equally sound to assert that there is a past, present, and future desirability for each producer of primary commodities to secure a price for his output which will assure a reasonable purchasing power to those whose share of income distribution devolves from such an industry.²⁹ How, otherwise, can they achieve security? And the demand for security is insistent. There is no use in pleading the merits of risk-taking in a private enterprise, price-profit economy. Too many segments, large and small, involving all production factors, exert themselves to the utmost to erect shields against risks and assure security. It is always the other fellow who should run the risks—not we.

The price system allocates factors of production and determines the level of their employment. In so doing it renders us markedly interdependent and prone to adversity, especially those of us producing primary commodities, when its mechanisms get out of mesh. Bennett and Associates, Benjamin Graham, Frank D. Graham, and others are willing to stabilize a general level of major commodity prices to give us some shelter. From exactly the same sort of data other students of the subject reach the conclusion that individual prices of primary commodities should be stabilized, with beneficial consequences throughout the entire economy. This is to favor, rather than to avoid as with Bennett, action "to pay homage in some degree to the preservation of historical price relationships."³⁰ The price system is too imperfect a mechanism for us to place more than only limited reliance on its automatic regulation. Those who favor multiple-commodity-unit reserves agree to this, or they would not seek stabilization of the general price level for primary commodities.³¹ Thus, though they concede the anarchy of too much variation in market price fluctuations, in their residual devotion as liberal economists to laissez-faire, automatic price and market mechanisms, classical perfect competition, and fear of bureaucratic management, they still hold up their hands in holy horror at the suggestion, except for dire emergencies, of stabilizing individual commodity prices (freezing,

²⁹ In *World Commodities and World Currency*, p. 147, Benjamin Graham quotes from the description of the "General Motors-Cornell World Price Index," p. 3, as follows: "It is significant that whenever wide price movements occur, regardless of the cause, the prices of certain universal basic commodities fluctuate far more rapidly, and to a far greater extent, than do those of most other goods. It is likewise significant that approximately 70 percent of the persons gainfully employed in the world are engaged directly in the production, processing, and distribution of 40 or 50 of these universal basic commodities and their derivative products."

³⁰ *Op. cit.*, p. 123.

³¹ To quote the late Frank D. Graham, for example: "It is impossible to run a free enterprise system, according to its own *rationale*, except on the basis of a stable price level since, with fluctuating price levels, rewards and losses will have little, if any relation to productivity, and enterprise becomes a gamble." Lerner and Graham, *op. cit.*, p. 64. This applies with even more force to a stable price for each major basic commodity in addition to a stable general price level or value of money.

they call it—a neat semantic difference).³² But at times a stable general price level can be a deceptive thing, and may mask profound changes in particular commodity prices, some going up, and some going down. A stable general price level does not much help the wheat or cotton or lead producer or consumer when the individual prices of these commodities fluctuate widely. There is a fundamental conflict here due to divergent concepts of what constitutes a free market. When any producer or consumer can buy or sell a primary commodity in any quantity at a long maintained “mint” price, as with gold when under the full gold standard, this too is a free market, and may be a useful part of our relatively free economy.

It is possible that a coordinated series of individual commodity reserves to stabilize individual commodity prices may be more palatable politically than a multiple-commodity-unit reserve to stabilize a general price level. The desire for stability and security is deep-seated, both for consumers and producers; and it is experienced in terms of individual prices, rather than in terms of general price levels. It appears to this writer to be stronger than any fear of the preservation of a degree of historical price relationships. It may well be that the complicated formula and discretionary action—and prohibitions to action—of Bennett’s CRS, for example, will preclude its adoption. Political appeal would probably be anaemic, and political support apathetic, once it became known that a price support agency operating under it would be estopped from acting in a price decline comparable to that of 1920–21, and would not have been obliged to act in the price decline of 1937–38. Politics is the art of the possible, and as noted above in a quotation from Bennett, the political reality is that primary producers desire the preservation of a degree of historical price relationships for each individual commodity relative to the general price level. Stabilization of the general price level is not enough. And if a coordinated series of individual primary commodity prices stabilized by commodity reserves is just as valid, economically, as is stabilization of a general price level based on multiple-commodity-unit reserves, then it seems to be preferable in terms of political realities. To be sure, everyone prefers a rising price to a stable price for his own commodity; but at the same time, everyone fears the instability of a boom and the down-spiral into a depression. It should not be over-difficult, if properly timed, to secure widespread agreement on individual price stabilization with a series of basic commodity reserves. This is not to minimize the problem of the pressure of the organized producers of each commodity to get a higher stabilized price for their own commodity. Pressure by producer groups must be expected—and must be

³² Cf. Abba P. Lerner: “Stabilizing this index does not mean freezing the prices of particular goods (although some individual prices might temporarily be stabilized by Counterspeculation boards). Prices should be free to move in accordance with changes in the conditions of supply and demand for them.” His parenthesis. Lerner and Graham, *op. cit.*, p. 200.

countered, for the general welfare. If we are not adequate politically to such a task, then we are indeed in a bad way, and we are in for some bad times, whatever we try to do—or don't do.

As compared to doing nothing, the present writer would be quite willing to go along with the proposals of Benjamin Graham, or Frank D. Graham, or Bennett and Associates, for group-commodity-unit reserves and general price level stabilization. And although the particular witch's broom he rides is a coordinated series of individual commodity reserves with a long-maintained (but not unchangeable) "mint" price for each, he would be quite willing to go along with a proposal, such as Riefler's, with a spread of buying and selling prices below and above an index for each individual commodity. We need improved mechanisms to stabilize our economy when the inevitable depression threatens. In the meantime, while many basic commodities are in short supply, it would not be amiss to pursue further, in our community of minds, the potentialities of commodity reserves.³³

³³ To quote from a recent letter from Benjamin Graham: "The issue of individual stabilization vs. commodity group stabilization will ultimately have to be decided on its merits. But it looks to us now as if there will be a delay of some years before pressure of commodities on world markets creates another crisis, which may finally lead to action." And, from M. K. Bennett, relative to the writer's own proposals: "... Third, I miss a sufficiently thorough discussion of the principles of determining either an initial 'mint' price for any commodity or a change in one." In due time I may hope to supply this.

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NOTES

A CASE STUDY IN RISK DISTRIBUTION: THE CALIFORNIA LETTUCE INDUSTRY*

AMONG the many difficulties which are said to bedevil American agriculture, those arising from the uncertainty of income expectations hold a prominent place. Unable to control output because of the unpredictability of damage from bad weather, disease, and pests, unable to control prices even if he could control output, because of the atomistic organization of agriculture, the American farmer is made to appear at a great disadvantage in a highly organized industrial society. Uncertainty of expectations has been cited, in fact, as the principal reason for an alleged undercapitalization of agriculture and consequent low productivity of farm labor relative to the rest of the economy.¹

Proposals to reduce the cost of uncertainty to individual farmers have usually taken the form of devices to reduce uncertainty absolutely by controlled marketing and production, or by guaranteed farm prices. An exception, of course, is the federal crop insurance program, in which the farmer is expected to bear part or all of the cost. Most of these proposals have dealt only with storable commodities, such as wheat, cotton, and corn. For such commodities there has already been developed a rather elaborate market system, which goes a long way toward quantifying the cost of uncertainty. There has been great reluctance to tackle the much more violent and frequent fluctuations which characterize the perishable crops. Recent experience with potatoes makes this reluctance seem quite reasonable.

Among the perishables, lettuce would appear to be one of the most difficult crops to put on a stable basis. Lettuce can be kept for no more than 30 days, even under refrigeration; it is almost worthless except as a fresh salad vegetable; it is quite as susceptible as most crops to damage from weather and disease; and it can be grown in every part of the United States. Yet today lettuce growing is a stable, concentrated, large-volume industry in two California valleys, the Salinas and the Imperial, with annual shipments of about 50,000 cars worth about \$50 million at the shipping point. These two valleys produce about 65 percent of all lettuce shipped by rail in the United States, and are the principal suppliers of markets as distant as New York City.

The great expansion in California lettuce production which took place between 1922 and 1929 could not have occurred without a satisfactory solution of the problem of uncertainty. It was accomplished with little or

* Paper presented at the annual meeting of the Pacific Coast Economic Association, September 7 and 8, 1950, at Corvallis, Oregon.

¹ See, for example, D. G. Johnson, *Forward Prices for Agriculture* (Chicago, 1947).

no governmental assistance, and without effective control of prices. Furthermore, in the Salinas Valley, the principal producing area, lettuce-growing began, had its most rapid development, and is today most important on farms which average only about 100 acres in size.

The outstanding characteristic of lettuce growing is the very wide range in possible returns from a given planting. Yields in the Salinas Valley average from 150 to 200 crates per acre, but may be 300 crates or more, or may be nothing. The average cost of growing an acre of lettuce up to harvest was about \$175 in 1948, including cash rent of \$40. Harvesting, packing, and loading cost about \$2 a crate. Prices f.o.b. Salinas in 1948 averaged \$3.14 for the season, but ranged from \$2 to \$8 per crate. Using these figures, net return over costs could vary from a loss of \$175 per acre to a possible profit of \$1,625 per acre. At the average price for the season, a typical yield of 200 crates would have netted \$53 per acre.²

If the grower himself harvests and ships his crop to an eastern market, rather than sell it to a packer-shipper before harvest, his investment is greatly increased. In 1948 it cost just about \$400 to ship 200 crates of lettuce to New York City.³ New York wholesale prices in that year ranged from \$1.25 to \$17 a crate, making possible net returns from one acre of lettuce range from a loss of \$725 to a profit of \$2,400. Average wholesale price in New York for the season, \$5.60 a crate, would have yielded a net profit of \$120 per acre.

Price fluctuations are apt to be violent. In the week of July 25, 1949, for example, the price at Salinas averaged \$2.35 per crate; two weeks later it averaged \$5.65. On August 3 of that year lettuce sold for as low as \$2.50; nine days later some cars were sold at \$7 and \$8 a crate, and the poorest lettuce brought \$5 and \$6. Such sharp fluctuations do not occur many times during a season, but can be expected in every season.

There appears to be no regular pattern in the variation of price through the year. Seasonal highs and lows have occurred in every month and at just about every interval. During the last three years, weekly average prices were at their highest in mid-May and mid-August in 1947, early May and late June in 1948, and early September and late October in 1949.

It takes from 70 to 150 days for lettuce to grow to maturity, depending largely on the season, and the grower has no assurance the crop will be ready at a specific time.⁴ Harvest can be delayed or accelerated four or five days by the grower at some sacrifice of quality; it can also be ac-

² Prices and shipments from *Marketing Salinas-Watsonville Lettuce* (Federal-State Market News Service, U. S. D. A., Prod. and Mktg. Adm., and California D. A., Bur. Market News, cooperating, various years. Title varies slightly.) Cost data based on records of some growers and on information supplied by A. A. Tavernetti, Monterey County Farm Advisor.

³ *Marketing Salinas-Watsonville-Hollister Lettuce, Summary of 1948 Season*, p. 43.

⁴ See A. A. Tavernetti and J. B. Schneider, *Head Lettuce Production in California* (Calif. Agr. Exten. Serv. Circ. 105, January 1938) for description of cultural practices.

celerated or delayed a longer period by nature. Weather during the growing season and plant diseases that cannot be completely controlled affect time of planting, maturity, and the character of the yield. Lettuce is subject to most of the crop hazards peculiar to farming, and the hazards are magnified by the importance, from the standpoint of price, of the date of harvest.

The return which a grower will receive is of course not entirely outside his control. In 1948, for example, even on days when some lettuce sold for as little as \$2 a crate, lettuce of better quality brought as much as 50 cents, even \$1 more. To the extent that a farmer can control quality he can also exert some control over price. Furthermore, many growers have costs considerably below the average quoted, just as some growers have considerably higher costs.

In the first three or four years of lettuce production in the Salinas Valley, the farmer usually assumed all the risk of growing and harvesting the crop, and most of the risk of shipping it east. But the typical planting was of five to 10 acres on farms which were largely devoted to more familiar crops with considerably lower growing costs and much more stable sales prices. Perhaps, if there had been no change in the marketing structure, each Salinas Valley farm might have continued to put a few acres into lettuce every year, in the same way that many people each year buy a ticket in the sweepstakes. It is extremely unlikely that many farmers would have put the greater part of their farms into lettuce; the investment would have been considerable, and the chance of losing it would have been large.

Yet for the past 20 years the Salinas district has annually raised more than 50,000 acres of lettuce; for most of the past 10 years from 60,000 to 70,000 acres have been planted to this crop.

Many farms are planted to lettuce exclusively for several years in a row, sometimes to three crops in the same year. Lettuce fields today range up to 100 acres in size. The fields are prepared, planted, and cultivated by tractor-drawn machines, and although hand labor is still necessary for thinning and harvesting, the use of special tractor-drawn field carts and loaders has considerably speeded the harvesting operation. The reduction in costs resulting from mechanization would have been very difficult if fields of five to 10 acres had continued to be typical. But unless farmers could have somehow reduced the risk involved, planting in small patches would have been the rule.

Over the years western packers and brokers assumed more and more of the market risk themselves, in order to obtain supplies in the quantity they desired. As a result, the prospective lettuce grower can now select from a wide range of alternative sales agreements in addition to direct sale at harvest time to a shipper, or through a broker. First, he may sell his crop in the field some time before harvest. The shipper, with a much larger organization, is usually able to harvest the crop and move it to market at a

lower cost than could the grower; and by buying before harvest, he also assumes a bit more of the market risk.

Second, if a farmer is unable or unwilling to make the investment required to grow the crop, he may be able to borrow money from a shipper in exchange for an agreement to sell to the shipper at the market price at time of harvest.

A third arrangement, and probably the one most generally used by independent farms, is to contract before planting for sale of the crop at a guaranteed minimum figure large enough to cover direct costs. If the crop brings more than the guarantee, after harvesting and packing costs have been deducted, grower and shipper split the difference equally. The farmer risks nothing but the rent he might have received from some other use of the land; on the other hand, his possible profits are greatly reduced. Using the average figures already quoted, a yield of 200 crates sold at the 1948 average price of \$3.14 a crate represents total receipts, less harvest and packing cost, of \$228. The grower would receive a minimum of, say, \$125 plus \$51.50, or \$176.50. This is almost exactly the estimated growing cost, including rent. The shipper, of course, would receive \$51.50, which is a payment for his guarantee.

In their efforts to secure larger supplies of lettuce, shippers have not stopped at financing its production through direct loans or guaranteed returns. Something over half of all lettuce produced in the valley today is grown by the shippers themselves, now become grower-shippers who rent land from the former owner-operator. This is a logical progression of risk transfer; the landowner foregoes all possibility of high profits in exchange for an assured return.

The process so far described is chiefly one of increasing transfer of risk, from farmers who happened to have the land on which lettuce might be grown, and who had no special propensity for risk-bearing, to shippers who were presumably characterized by a special willingness and ability to assume risk. The question remains as to how the venturesome individuals who became shippers regulated their activities.

Since 1930 the shippers of the Salinas District have been united in a voluntary trade association organized to "generally develop and protect the interests of the vegetable industry in the Salinas-Watsonville District. . . ." ⁶ The chief activities of the association have arisen from attempts to reduce marketing risk and attempts to hold down labor costs.

Probably the most obvious way to reduce the great variations in lettuce prices, and thus to reduce the uncertainty of expectations, would be through some system of "orderly marketing." But the Salinas shippers

⁶ "Articles of Incorporation of Grower-Shipper Vegetable Association of Central California," as reproduced in U. S. Congress, Senate, Committee on Education and Labor, *Violations of Free Speech and Rights of Labor*, Hearings, 76th Congress, 3rd sess., pursuant to S. Res. 266 (74th Congress, 1940) Pt. 73, p. 26970.

have had little success in their attempts to adjust the supply of lettuce to price, and to prevent oversupplies from reaching the market. Attempts at control through trade associations and agreements have been generally unsuccessful. The community of interest of shippers is broken by the variation in their financial strength, and by the difference in their relationships with other producing areas and with the eastern markets.⁶

Establishment of an f.o.b. market at Salinas tended to relieve the shippers of some risk, partly by transferring it to the buyers, partly by reducing it absolutely through the development of a more competitive market. Furthermore, if it were possible to limit all sales of lettuce to an f.o.b. Salinas basis, lettuce would be abandoned in the field more often when prices were too low, and there would be a more rapid correction of price decline. But as long as the shipper has a chance of recovering some of his losses on a particular crop by shipping unsold cars of lettuce east and gambling on a price rise before their arrival, the frequent market gluts that have characterized the industry will continue. The large shippers have been able to maintain a fairly united front at times, but their diversity of interest prevents any sort of permanent united action; the smaller firms, because of their financial insecurity, find themselves unable to remain out of the market for the period of time necessary to maintain effective market control, and have usually been the ones to break any attempts at shipping restriction.

Is lettuce shipping, then, primarily gambling? Casual comments made by nearly everyone who knows anything about the business would certainly lead one to think so. The erratic course of prices, the failure of all industry attempts to control prices, and the fairly high mortality of firms in the business tend to confirm this impression. Membership records of the Grower-Shippers Association for the period 1930 to 1938 show about 80 firms entering, and about 95 firms withdrawing from an industry which had an average total of only about 50 to 60 firms. They also indicate that perhaps as many as 23 firms survived throughout the 1930's.⁷

Now many of the firms may have failed because they gambled and lost, but it is significant that one third of the firms appear to have stayed in the game throughout the turbulent thirties. They were either very fortunate, had very large reserves, or were playing a very successful system. There is considerable reason to believe that it was their system which permitted them to survive, and that the system they used was the very simple one of participating in every play.

The successful lettuce shippers have placed heavy emphasis on being able to ship lettuce every week in the year. The steadily increasing assumption of

⁶ Cf. Helen B. Lamb, *Industrial Relations in the Western Lettuce Industry* (Cambridge, Mass., 1942).

⁷ U. S. Senate Committee on Education and Labor, *Violations of Free Speech and Rights of Labor*, Hearings, 76th Congress, 3rd sess., (1940) Pt. 73, pp. 26,988-26,989.

responsibility for production of the crop is evidence of the shippers' pressing need for regular supplies. A steady flow of lettuce from the fields is of course necessary in order to achieve optimum utilization of packing sheds, harvesting machinery, and permanent labor crews. More important, a constant flow of good quality lettuce is necessary to hold regular eastern customers, and thus to keep sales costs at a minimum. Finally, regular harvest of lettuce, with a steady flow of cars eastward, enables the shipper to sell his total season's crop at a figure close to the annual average price, an annual average that has varied but little from year to year. For the period 1931 to 1940, for example, it ranged from \$1.49 to \$2.16, about an average for the 10-year period of \$1.85. Since 1940, prices have gone up with other farm prices but show sharp change only from 1941 to 1942. If costs of growing, packing, and shipping were below the annual average price, as they appear to have been, there has been opportunity for steady profit with little danger of large loss.

Shippers who have a large enough volume to maintain a steady output of lettuce throughout the year are undoubtedly the backbone of the industry, and for them lettuce production and marketing present risks little different from other businesses. For the past 20 years, with a stable or rising annual average price, and with eastern markets showing a steadily increasing capacity to absorb lettuce, the hazards associated with price have actually been small. Distribution of operations throughout the year not only relieves shippers of much price uncertainty, but also tends to reduce the incidence of crop failure. In recent years some shippers have achieved further distribution of risk by entering into the production and marketing of other vegetable crops, by operating in other farming areas, and by investing in firms which supply materials needed in growing and packing lettuce.

But in addition to the few large shippers who do the bulk of the business, there are a larger number of small firms that appear to operate in a less conservative fashion. A few, probably very few, may eventually acquire sufficient funds to undertake a general operation. In the meantime, they are gambling in the hope of hitting a hot market. Their costs tend to be high, because of their scale of operation and because they must often grow lettuce on relatively poor land. Probably most of them are eliminated after one or two years, but there are always new entrants, attracted by the chance of making high profits, who are ready to take their place.

Some growers may plant lettuce even when the expected cost is equal to the expected average price, since there is always a chance of selling on a high market. This speculation on one or two crops helps to hold production high, and may result in the planting of land to lettuce even though loss is certain if no more than the season's average price is received.

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and thus assume all marketing and growing risks themselves, although usually they cannot achieve the economies of scale which are available to larger firms. A farmer with 100 acres of land available for lettuce, for example, can bring a crop to market about every three weeks throughout the season by planting 20 acres at a time. This will substantially reduce the probable range of returns for the season.

Perhaps a larger number of farmers on the margins of the principal lettuce areas still plant a few acres a year as a speculation, and sell the crop in the field if there is a market.

Most farmers, however, transfer risk to the shipper, either by contract for a guaranteed minimum, or by renting their lettuce land outright for cash.

Here, then, is one small part of American agriculture in which the uncertainties usually ascribed to farming are greatly magnified, which has achieved a remarkable expansion since World War I without resorting to controlled marketing, to governmental guarantee of prices, or to any other special governmental assistance. Unusual problems attendant to growing a tender and perishable crop at a great distance from its market have been overcome almost entirely by the actions of individual agents. By means of forward sales contracts and by backward vertical integration,⁸ risk has been transferred to individuals who are willing and able to bear it. These individuals, in turn, with adequate capital reserves, have been able to follow a program of staggered planting and thus free themselves largely from the impact of frequent price changes. Staggered planting, together with well policed quality standards and inspection, makes possible the concentration of production in a small area and maintenance of a large, competitive f.o.b. market at Salinas. The cost of uncertainty has been reduced to reasonable dimensions, even though the uncertainties of price and yield expectations for any particular harvest have been reduced hardly at all. Finally, uncertainty has in no way led to the sort of capital rationing envisaged by some economists. Uncertainty may even in some cases have attracted capital. But in general, capital has followed the venturesome entrepreneurs who worked out a system for making lettuce growing pay.⁹

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⁸ See W. Z. Hirsch, "Marketing Under Inelastic Demand Conditions," (paper read at Northern California Section Meeting of the American Marketing Association, Berkeley, May 18, 1950, mimeographed) for an interesting exposition of the effects of vertical integration on the price elasticity of demand, another bogey of agricultural economists.

⁹ For a description of the manner in which problems arising from uncertainty have been dealt with in some wheat-growing counties and some dairying counties see D. C. Horton, "Adaptation of the Farm Capital Structure to Uncertainty," *this Journal*, February 1949, pp. 76-100.

A MARKETING PROGRAM FOR STRAWBERRY PRODUCERS

THE financial success from growing strawberries depends upon a combination of four factors—improved production methods, organization of growers for marketing purposes in each producing area, a knowledge of markets and marketing, and merchandising. In order to comprehend the problems involved in marketing strawberries, it is necessary to examine the available economic information to determine the light in which these problems have to be considered.

Strawberry growers in the United States today are planting less acreage than 20 years ago. The average crop during the 1946-50 period was 119,164 acres as compared with an average of 184,080 acres for the 1930-34 seasons—a decrease of about 35 percent. There was a steady decline in acreage from 1929 to 1945, but it has been increasing each year during the last five years. The average yield per acre in the United States has increased from 61.6 crates (24 quarts) for the 1930-34 period, to an average yield of 77.2 crates for the 1946-50 period—an increase of about 25 percent.

Obviously, production of strawberries in the United States has not kept pace with increases in population. People were consuming larger quantities of strawberries during the depression years than in the present periods of prosperity. In 1930-34 the national average production was 11,281 million crates as compared to an average of 9,217 million crates for the 1946-50 period. In other words, one crate of berries was produced for every 11 persons in 1930-34 and only one crate for every 16 persons in 1946-50. Today we have 24 percent more people than we had 20 years ago, but roughly 18 percent less production.

It is important that producers be aware of the exact periods when their competitors in other areas will send berries into a common market. With specific reference to the Milwaukee and Chicago markets, strawberries appear on these two markets in rather definite and consistent periods. The first arrival of strawberries is in December and the last in July.

Florida	Dec., Jan., Feb., and part of March	3 mos.
Louisiana	March 15 to May 1	1½ mos.
Tenn., Mo., Ill.	May 1 to May 30	1 mo.
Mich., Iowa	May 30 to June 10	10 days
Wisconsin	June 10 to July 15—occasionally to Aug. 1	1-2½ mos.

Demand for Strawberries

Strawberries are often considered a luxury food for many consumers. Nevertheless, it is a fruit that has a great deal of eye-appeal and an excellent item for impulse sales. The well-to-do eat more berries than do people with small incomes. Individuals with small and medium incomes are potential users of berries if the price is "right" for them. Because of high costs of production and marketing, perishability of the crop, and the physical losses and market risks involved, strawberries are often out of the price range

many consumers can afford to pay for the satisfaction they get out of the commodity. Some of these factors, such as the level of income of consumers, cannot be controlled by the farmer. However, farmers, by improving and maintaining high marketable quality of their crop, can reduce the physical losses and market risks through better selling, efficient handling and distribution, and improvements in production, and thereby bring prices down within the budget reach of many consumers. Such improvements and price appeal to larger segments of the consuming classes do not mean lower net prices to producers, but rather reduced marketing margins for middlemen.

Will an increase in production reduce prices to farmers? An investigation of effects of supplies on price indicates that an increase of 1.93 percent in production would result in decreasing the price per crate by one percent.¹ An understanding of the nature of demand for a product has an important bearing in developing plans to increase or decrease production. However, this is only one phase of the problem facing farmers. The other is the cost of production. Here the problem is one of determining whether the cost of increasing production would be larger than the market returns.

It is highly probable that the demand for fresh strawberries will increase in the years immediately ahead, aside from the general effect of the increasing purchasing power of the people. Thousands of people now have home freezers and regular home refrigerators with sharp freezing compartments which they did not have years ago. The fact that strawberries can be so easily preserved by home freezing will induce many who would not use the laborious process of home canning to preserve them in this fashion. Furthermore, a large proportion of the patrons of frozen food locker plants are highly potential buyers of strawberries to be frozen and preserved at the locker plant. Thus, with the rapid increase in the use of home freezers, freezer compartments in refrigerators, and of lockers, the demand outlook has improved quite markedly.

Orderly Marketing Essential

Perhaps for no other crop do wholesale prices fluctuate as widely as they do for strawberries. In any given year changes in supply affect prices more than any other factor. Due to the extremely perishable nature of the crop, disorganized selling, and lack of market news, gluts appear in certain markets while other markets are undersupplied. Sometimes in the matter of a few days this situation is reversed, and the market that was over-supplied now experiences famine conditions. Not only are farmers dissatisfied with this situation, but also so are consumers, who want an even supply and more stability in prices. Orderly movement to a given market during the marketing season and distribution between markets is a primary

¹ W. F. Hoofnagle, Unpublished Report, Univ. of Wis., Dept. of Agr. Economics.

problem that must be solved for the good of producers, middlemen, and consumers.

Distribution of Strawberry Crop Over Several Markets

From the farmer's standpoint, there is something that he could do to minimize the fluctuation in prices that he receives—and that is to regulate sensibly the flow of shipments to various markets. Also growers, by feeding their various market outlets in an orderly manner, can increase their gross returns. Using Wisconsin production as an example, instead of shipping total supplies to Milwaukee, it might prove more profitable to producers if a certain quantity were diverted to Chicago, certain quantities shipped to Minneapolis-St. Paul, and the remainder of the crop sold in Milwaukee. Growers in each area should exchange information with reference to general crop conditions, available supply, daily shipments to respective markets, and prices received.

Selling Through Wholesalers Possessing Market Advantages

The selling and handling of small fruits in the wholesale markets is an industry in which specialization occurs. In each wholesale market there are merchants who purchase small fruits from the production areas and resell them to wholesalers and jobbers located in the same market, as well as to normal trade representatives made up of retailers, restaurants, and hotels. Some of these merchants buy berries for their own account as well as handle berries on a consignment basis for growers. Likewise, there are merchants who conduct business entirely on a straight consignment basis.

Under certain circumstances, it is more advantageous for growers to sell berries on a consignment basis, particularly (1) if the merchant does a large volume of business, (2) if the merchant conducts all of his selling and handling on a consignment basis, (3) if the merchant is reliable and dependable, (4) if the merchant makes payment immediately following completion of sales (one to two days), and (5) if price for each grower's lot is established at the wholesale market in accordance with quality delivered by each grower and the demand for it.

In order to strengthen the orderly marketing program just proposed, it will be necessary for the local authority (Co-op, if established) to seek out the most satisfactory wholesale merchant in each of the major markets mentioned to develop buying and selling operations of mutual benefit to each party. In other words, instead of spreading supplies among various merchants in each market, the recommended procedure would be to concentrate supplies within the confines of the merchant possessing specific market advantages.

Maintaining Minimum Price Floors

In the event large supplies occur due to climatic conditions, growers can partially alleviate price depressing conditions through diverting sup-

plies from the fresh market into the frozen product industry. A worthwhile policy to consider would be to establish feasible and economic minimum price floors at the farm level. If sufficient quantities cannot be moved through the fresh market channels and prices should decline below the minimum established floors, supplies could then be processed (frozen) for later sales to restaurants, hotels, hospitals, and other institutions. It is reasonable to assume that under the proposed program, supplies of lower quality berries would most likely be moved into the frozen industry. Incidentally, however, it should be pointed out that the frozen market outlets also demand high grade berries for processing. These berries could not compete with the quality of berries sold in the small consumer packages handled by retailers. Institutional buyers use berries in large quantities, and the size of the package required by them may be any of the following: 5-, 10-, 15-, or 30 lb. tins.

Most production areas do not have sufficient volume to maintain standby freezing plants. The desirable procedure would be to have the freezing done by (a) contract with a freezer plant; (b) direct sales to a freezer plant.

The availability of frozen food locker plants throughout the production areas further facilitates freezing berries as a part of the over-all marketing program for producers.

Marketing Organizations Imperative

Much of the success of the proposed market scheme will depend upon community participation and leadership provided by the local business organization if and when one is established. The proposed marketing program would fail if only a few of the farmers participated; it would also fail if the organization were not established on a sound business and marketing basis even though many farmers participated in the program. Therefore, it is imperative that growers give considerable thought to planning and establishing an organization to do their marketing job for them. A probable solution would be for growers to organize a sound local business cooperative in each of the production areas which would integrate their sales programs.

Quality Selling Important

Experience has taught many food merchants that in order to meet competition, it is necessary for them to sell quality products. This same type of business thinking applies to producers as well as to merchants, and to think otherwise would be folly. In working out a program of quality, one must extend his effort back to the farm. A conscientious educational program must be maintained with the producer. He must be taught the fundamental truth that a product well produced is more than half sold. He must know that a well produced commodity must be protected and so handled that it loses as little of its quality as possible while in his possession.

What are some of the advantages, if any, of a quality program? How does

the farmer benefit? Is it a lot of wasted energy without compensatory values? It might appear to many people that not much additional money is obtained for the quality product as compared with the loosely graded and carelessly packed commodity. The price spreads listed below were received from wholesalers for strawberries sold in the Milwaukee market. Three different market conditions were selected—a brisk or active market, a steady market, and a glutted or oversupplied market.

<i>Grade</i>	<i>Active Market</i> \$ per crate	<i>Steady Market</i> \$ per crate	<i>Glutted Market</i> \$ per crate
Fancy	10.00	5.00	2.00
No. 1	8.00	4.00	1.75
No. 2	6.00	3.00	1.50

Whether the market is declining, advancing, or being steady, the advantage of quality merchandise is always in evidence. These prices also indicate that within each market there actually are three major market outlets. There are buyers who demand top quality. They are made up of the high-class retailers, fancy restaurateurs, and hotels catering to consumers in the high income group. The second market outlet is made up of buyers who purchase medium quality where price is somewhat of a factor to their customers. The third market outlet is made up of the inefficient and small retailers, hucksters, and other buyers who cater to consumers of low incomes. The buyers in this class are usually interested in handling distressed produce; the intelligent merchandiser never permits his products to fall into this category.

The market outlets are not as clear-cut as presented because there is some overlapping. The fundamental factor to be considered is that the quality of the fruit which every grower produces eventually finds its own market level.

Wholesale Selling Operations

In addition to the marketing program outlined above, growers could increase their farm income from strawberries by adopting and following acceptable merchandising practices. By merchandising is meant those activities which anticipate dealer and consumer requirements and then take all necessary steps to satisfy them.

Delivery

The market for berries in the wholesale markets usually begins at 5 A.M. and is completed by 12 noon, with most activity occurring during the early hours. For all practical purposes, there is no market for berries that are delivered from the production areas in the afternoon. It is imperative that berries be shipped to arrive for the early morning selling period. As a rule wholesalers segregate the shipments into three lots—Fancy, No. 1, and No.

2, and sections of the store are so divided that buyers can make their inspections and purchases with dispatch.

Grading

Growers should follow a policy of separating their strawberry supplies into two or more grades. Since there are three different market outlets in each large city for three kinds of qualities, the acceptable procedure would be to use three grades—Fancy—No. 1—No. 2.

Uniform Quality Throughout Till

The berries in all three grades should be of uniform quality throughout the till. The practice of severe facing should be discouraged (placing Fancy berries on top layer of quart till and No. 2 berries underneath). Perhaps there is no other factor that discourages sales to wholesalers and consumers more than the practice of extreme facing.

Harvest at Proper Stage of Maturity

The general criticism among city buyers of berries is that growers harvest their berries at an overmature stage. The overmature berries cannot stand normal handling and shipments, and arrive in terminal markets with poor sales appeal. Growers should make every effort to correct this situation.

Water-soaked Berries Require Immediate Consumption

Another major criticism by buyers is that some growers mix water-soaked berries (picked immediately following a rainfall) with berries that are firm and sound. Water-soaked berries deteriorate rapidly and should be moved into consumption immediately. These supplies should be so identified that the wholesaler is acquainted with the condition of the merchandise. He will then be in a better position to place these berries in the proper outlet at the earliest opportunity.

Stubby Shape Berries in Demand

The market prefers berries that are stubby in shape instead of the longer pointed berries. Growers should increase their plantings of varieties which normally produce the stubby shape berry. Varieties that result in producing green tipped berries should be avoided.

Crate Marking

Merchants report that Fancy quality berries require the least amount of selling attention. It is the poor quality that calls for expert salesmanship. Unless the packages are clearly marked, designating the quality by the grower, quite often berries are not segregated according to grades by the

wholesaler. If, for instance, a load of berries is received with poor quality crates on top, occasionally the entire load is sold on the basis of the top crate. There are times when strawberry crates of varying qualities are received with Fancy quality on top and poorer quality underneath, and the entire load is sold on the basis of the top sample. In these instances buyers demand price adjustments and unsatisfactory business relationships result. If the crates are clearly marked, the wholesaler is in a better position to establish his sales program and to return to the producer the correct price for the qualities delivered. Poorer quality berries have to be sold by 7 A.M., largely to the huckster trade. If they are not sold easily, they become the biggest "headache" at 11 A.M.

A healthy business relationship must be developed between farmer and wholesaler. The wholesaler is in a position to work for the farmer, but the farmer must do his part through improved merchandising practices.

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SHORT-TERM FINANCING OF COMMERCIAL BROILER PRODUCTION

COMMERCIAL broiler production has tended to become highly specialized and concentrated in small areas. The extension of large amounts of credit to growers appears to be the major motivating factor in the rapid development of these areas. The purposes of this paper are to describe some of the major ways of furnishing short-term credit for broiler production and to show how financing affects resource allocation in a dynamic economy.

Although there are a large number of methods for financing broiler operations, the following systems dominate in the major areas:

1. The cash method of financing is used to a limited degree in all major broiler areas. With this method the grower owns buildings and equipment and pays cash for other items of production.

2. A modification of the cash method is one in which the grower obtains a loan requiring interest payments. The loan may be made by banks, government agencies, individuals, or dealers. When made by a poultry supply dealer, the loan sometimes carries the specified or implied requirement that supplies be purchased from the lender. The amount of funds which may be borrowed depends upon security offered. A system requiring a note and chattel mortgage is very common in Arkansas. Supplies are sometimes furnished the grower by a conditional sales agreement and a promissory note. The title to all supplies, which usually include the broilers, is retained by the financing agent. Although the financing agent usually has

first option to buy the broilers, they may be sold to a buyer offering a higher price if the financing agent gives his consent. The use of conditional sales agreements plus notes is very common in western and southern Indiana.

3. Supplies are often furnished on open account by dealers. There is no interest charge specified; however, supplies may be higher priced than if purchased with cash. This system of credit is used to a limited degree in all broiler producing areas.

4. The grower is furnished all supplies other than labor and non-expendable equipment by a financing agent (usually a feed dealer or hatchery), on a conditional sales agreement. The title to all the supplies is retained by the financing agent. Usually there is no note or interest charge although supplies may be higher priced than if purchased for cash. The financing agent usually has first option to buy the broilers and in some cases has the authority to do the marketing. If the receipts from the broilers sold are in excess of the credit furnished, the surplus is divided between the grower and the financing agent. If receipts do not equal the outstanding credit, the financing agent accepts all loss, other than labor and the use of the grower's equipment, without recourse to the grower. The share of the surplus going to the grower is usually 75 percent in Delaware and Maryland and 90 percent in the Virginia Shenandoah Valley, where this plan is used extensively. (As the share of profits going to financing agents decreases, sales markups on supplies tend to increase.)

5. A modification of Plan 4 is one in which the grower agrees to raise three flocks consecutively with the financing agent. Profit sharing is on the same basis as Plan 4. The dealer's share of profits, however, is credited to the grower's account. If, after the three flocks have been raised, the total receipts exceed total credit extended, the grower receives the remainder of the surplus. If there is a net deficit, the financing agent accepts it without recourse to the grower.

6. Another modification of Plan 4 is that the financing agent guarantees the grower a labor payment, often \$50 per 1,000 broilers sold. If receipts exceed the value of the supplies plus the labor payment, the excess is shared, usually on a 50-50 basis. This plan is used in all areas, especially during periods of low prices. It is especially prevalent in north Georgia.

7. The financing agent pays the grower a fixed amount for his labor and facilities. All supplies such as feed, chicks, and drugs are supplied by the financing agent. The chicks belong to the financing agent and he gets all profits or loss. In effect this is a labor and rental payment, not a plan for financing growers.

Under the first three plans the grower receives all receipts from broilers sold and is responsible for all credit, even if broiler receipts fail to equal or exceed outstanding credit. In the other plans the grower has shifted all or part of the risk of losses to a financing agent.

The use of a considerable amount of credit is necessary in all areas. Items such as feed, chicks, drugs, fuel, and litter make up about 90 percent of total cost of production. At the present time, to finance a one-man operation of 15,000 broilers would require at least \$10,000 for feed and chicks only.

Broiler financing plans have been widely criticized for being so costly to growers. The costs *are* high if they are imputed as interest on credit extended. These financing costs, however, include more than interest on capital. To a considerable degree, they include charges to cover the financing agent's risk involved in the particular financing plan.

The risk of broilers' returns not equaling out-of-pocket expenses (variable costs) is very high. This is attributable to three factors. First, out-of-pocket costs average about 90 percent of total costs of production. Second, factors such as disease frequently produce a high rate of mortality. Third, since the volume of broiler production varies greatly and marketings vary even more, the price of broilers fluctuates widely, quickly, and frequently. These price uncertainties are particularly important, since most broiler producers market all of each flock of broilers at one time; they market few flocks per year; and it is usually uneconomical to hold broilers in anticipation of higher prices after they have reached a marketable age.

Two measures of efficient use of resources in broiler production are: (1) the enterprise should be large enough to utilize fully that portion of a grower's labor for which broilers give a higher labor earning than would another enterprise, and (2) the enterprise should be continuous to utilize fully those resources such as houses and operator's labor, which have no alternative or inferior alternative uses.

The failure to achieve these two conditions may be effected by either (1) the lending agency's refusal to extend the grower adequate credit, or (2) the grower's refusal to accept the amount of risk inherent in these conditions.

A comparison of Arkansas and southern Indiana indicates that areas with high collateral requirements have smaller sized flocks than those areas requiring less security. Flocks in Arkansas are only about 60 percent the size of those in southern Indiana. Of course, part of this difference may be attributable to differences in capital available for broiler houses and equipment.

Contracts shifting all risk of loss other than overhead and all or part of labor to a financing agent encourage optimum sized flocks in Delaware and Maryland. (Small-sized flocks in the Virginia Shenandoah Valley and Georgia appear to be attributable to lack of capital for housing and/or less incentive to operate a large business, rather than lack of short-term capital.) The larger flocks can be explained in part by simple theory of the firm. To the average grower, labor and use of equipment are fixed costs in the short run. All the grower's variable cost (with a few minor exceptions

such as stove pipe, electric lights, etc.) are covered regardless of amount received for broilers. The grower, therefore, has a strong incentive to maximize his income by producing a large flock and by staying in production—at least until he decides to completely abandon the enterprise.

Financing agents are usually well qualified to assume risks. Through simple horizontal integration, that is the financing of many separate flocks, they can spread risk of high mortality and uncertainty of broiler prices to achieve an "average" relationship. Risks are also spread through vertical integration. Since most financing agents sell feed and/or chicks and other supplies, they have an opportunity to increase earnings by retail sales margins as well as by sharing profits with growers. Because they have fixed costs also, most financing agents encourage large scale continuous production as long as returns from broiler sales exceed their variable costs, primarily the wholesale value of feed, chicks, and other supplies.

Many financing agents have taken most or all of the entrepreneurial functions from the individual growers. Having assumed risks, the financing agent demands more control, such as retaining title to the birds and controlling marketing. Many of the large financing agents provide management assistance to growers, especially in disease control.

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PRODUCER BUTTERFAT DIFFERENTIALS IN FLUID MILK MARKETS*

PRODUCER butterfat differentials are small but essential parts of pricing mechanisms in fluid milk markets. Their purpose is to vary milk prices to individual producers from the uniform producer price for milk of a basic butterfat test, usually 3.5 percent or 4.0 percent, in accordance with variations in fat tests of individual producers' milk deliveries from this basic test.

Need for a differential rests on two conditions discussed later: (1) High-fat milk has a greater market value per hundredweight than milk low in butterfat. And (2) production costs per 100 pounds of milk are greater for high-fat than for low-fat milk.

Problems and Objectives

The principal problem associated with establishing a producer butterfat differential is fixing its magnitude relative to the uniform producer price. This relationship determines relative prices of milk of all butterfat tests.

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The writer is indebted to G. B. Wood and Don Paarlberg, Department of Agricultural Economics, Purdue University, for critical readings of the manuscript.

Therefore, it determines the equity of these prices among producers and it may affect the average butterfat test of all milk deliveries to a market. Another problem is choice of a method of computing differentials. Known methods fix differentials which vary in amount under similar conditions. The methods differ, also, in relative ease of administration.

Market Average Butterfat Test

It is an accepted marketing principle that sellers should attempt to satisfy buyers' demands on product quality, for this usually, or at least in the long run, serves the interests of both groups. Fluid milk distributors usually have some average butterfat test they prefer in milk delivered to them. This preference for a certain average test is based largely on the butterfat contents and sales volumes of products regularly sold by them.

Individual milk producers, however, cannot be expected to serve the interests of dealers, or all producers as a group, unless it is personally profitable to do so. Computations in Table I, from Indianapolis market data, show that the price of 5.0 percent milk would be markedly higher with an 8-cent rather than a 6-cent differential. The price of 3.0 percent milk, on the other hand, would be sharply lower with an 8-cent than with a 6-cent differential, other price making conditions remaining the same. In other words, high butterfat differentials encourage farmers to produce milk high in fat content while low differentials encourage production of milk low in fat.

Changes in the average butterfat test of all milk deliveries to a market may result from movements of producers among competing markets. They may also result from changes in compositions of herds within the milkshed. In time, a marked trend in the average butterfat test of milk deliveries can have serious consequences for a market.¹

Equity in Pricing

Equitable treatment of milk producers is another generally accepted goal in milk pricing. Equity in pricing equal volumes of milk of unequal butterfat tests requires a butterfat differential. This is true, as it is shown later, whether one holds that butterfat differentials should adjust prices of milk of different fat tests on the basis of differences in production costs or market values.

¹ The average fat test of Grade A milk deliveries to Indianapolis declined steadily from 4.25 percent in 1945 to 4.00 percent in 1949 apparently as the result of low producer butterfat differentials. These averaged about 10 percent of the Chicago wholesale price of 92-score butter. The weighted average fat content of dealers' sales of products for which Grade A milk is required by health authorities long has been 4.0 percent. A continuation of the 1945-49 trend in fat test of producer milk deliveries probably would force dealers to make one of, or a combination of, three adjustments: (1) purchase cream from sources outside the milkshed, (2) find outlets for surplus skim milk, or (3) reduce fat contents of finished products. Except under the unlikely condition that consumers would prefer products containing less butterfat than those they have been accustomed to buying, the effects of each of these adjustments on local producers' returns probably would not be favorable.

Simplicity of Administration

One criticism of milk price administration in large fluid milk markets is that it is unnecessarily complex. Therefore, in choosing a method of computing butterfat differentials, maximum simplicity of administration consistent with other, more important requirements should be sought.

Bases of Differentials

At least two economic criteria are available by which the proper magnitude of producer butterfat differentials can be estimated. These are market values and production costs.²

Production Costs

Studies in Michigan, Vermont, and New York indicate that costs of producing 100 pounds of milk with a high butterfat content are greater than costs of producing 100 pounds of low-fat milk.³ The average variation in costs per point (0.1 percent butterfat) from the farm cost of producing milk with a butterfat test of 4.0 percent was about 2.1 percent in the Michigan study and about 2.4 percent in the others. These relationships prevailed, according to findings of each of these studies, because costs of production per pound of butterfat were about the same whether it was produced as part of a small volume of high-fat milk or as part of a much larger volume of milk low in butterfat.

Under such conditions, a butterfat differential may be considered equitable among producers when it adjusts prices of milk of all butterfat tests so that approximately equal gross returns are received from every volume of milk containing 100 pounds of butterfat, regardless of the butterfat test of that milk. A differential of about 2.1 percent to 2.4 percent of the farm cost of producing milk testing 4.0 percent butterfat, according to the above-mentioned studies, will do this. A differential in this range of relative magnitudes, furthermore, should offer milk producers no inducement to change the average fat test of their milk deliveries.

The above percentages, 2.1 percent and 2.4 percent of the farm cost, are approximately equal to 2.0 percent to 2.2 percent of the higher delivered cost of milk of 4.0 percent butterfat.⁴ This is illustrated in Table I, computed from

² Two other criteria are also available: energy value differences and direct butterfat ratios. Neither of these physical bases are appropriate for a fluid milk market because the first would establish differentials that would be too low, and the second, differentials that would be too high in terms of the two economic criteria.

³ K. T. Wright and A. E. Baltzer, *Profitable Dairy Management*, Michigan A.E.S. Spec. Bul. 297, 1939; S. W. Williams, *Studies in Vermont Dairy Farming* XII, Vermont A.E.S. Bul. 470, 1941; and E. G. Misner, *Some Methods of Computing Butterfat Price Differentials*, Cornell University A.E. 459 (mimeo), 1943.

⁴ These percentages will vary slightly from market to market and from time to time as direct marketing charges, chiefly transportation charges and producers' association fees, vary in relation to uniform producer prices.

TABLE I. EFFECT OF 6-CENT AND 8-CENT BUTTERFAT DIFFERENTIALS ON FARM PRICE OF MILK AND ON GROSS RETURNS OF FARMERS FOR 100 POUNDS OF BUTTERFAT IN MILK OF SELECTED FAT TESTS, INDIANAPOLIS, IND., JUNE 1-15, 1950^a

Fat test	Pounds of milk necessary to provide 100 lbs. of butterfat	Farm price ^b per cwt. with differentials of:		Gross returns to producers with differentials of: ^c	
		6¢ ^d	8¢ ^d	6¢	8¢
(%)	(lbs.)	(¢)	(¢)	(¢)	(¢)
3.0	3,333	2.54	2.38	84.66	79.33
3.5	2,857	2.84	2.78	81.14	79.42
4.0	2,500	3.14	3.18	78.50	79.50
4.5	2,222	3.44	3.58	76.44	79.55
5.0	2,000	3.74	3.98	74.80	79.60

^a Computed from data furnished by The Indianapolis Sales Association, principal producers' association active in the market, and the agency chiefly responsible for administration of price pools and related matters. Computations from data for other periods produced essentially similar results.

^b This is the f.o.b. city plant price minus transportation charges and producers' association fees totaling 45 cents per hundredweight.

^c This is the differential actually used in this period.

^d The amount the differential would have been, had it been fixed at 2.2 percent of the price of milk testing 4.0 percent fat.

^e Column 2 times Columns 3 and 4, respectively.

data of the Indianapolis market for June 1-15, 1950.⁵ In this period, an 8-cent differential, equal to 2.2 percent of the uniform producer price of \$3.63 for 4.0 percent milk, would have given each producer about \$79, after deduction of direct marketing charges, for 100 pounds of butterfat. This would have equaled a farm price of \$2.38 per hundredweight for the 3,333 pounds of milk testing 3.0 percent butterfat necessary to provide 100 pounds of butterfat. It would have equaled \$3.98 per hundredweight for the 2,000 pounds of 5.0 percent milk necessary to provide 100 pounds of butterfat. Computation of a uniform price for milk testing 3.5 percent butterfat would not have altered prices computed for any fat test, provided that the same 8-cent differential were used. The differential, however, would then have been about 2.5 percent of the lower uniform price for 3.5 percent milk.

Market value

Market value is not one but several bases of establishing butterfat differentials. Most midwestern fluid milk markets fix producer butterfat differentials at some percentage, usually 12 percent of the Chicago wholesale price of 92-score butter. This method is administratively simple. It also crudely approximates true differences in market values of milk of various fat tests. This is because of a generally close relationship between butter and fluid milk prices. The method (and its variants), however, has several defects:

(1) It takes no account of the association of a 0.041 percent change in

⁵ Essentially similar results were obtained using data for other periods.

non-fat solids contents of milk with each 0.1 percent variation in butterfat content.⁶ (2) It takes no account of relative market values of these two types of solids. (3) Its use implies that the marginal use of butterfat in a fluid milk market always is butter production. This may or may not be true depending on both the market and the season. And (4) if butterfat differentials are based on butter prices alone, relative prices of milk of various butterfat tests change whenever fluid milk prices change in response to variations in Class I premiums and in percentages of milk utilized in Class I. This is an especially serious defect of the method.

Class I premiums in markets using the use-classification basis of pricing milk to dealers are, in large measure, premiums for high quality milk. Quality, here, is not related to fat content. The premiums are intended to fix higher prices for both the fat and skim portions of milk. If butterfat differentials are based on butter prices alone, a given absolute change in the uniform price, say \$1, resulting from a change in the Class I premium, causes prices of milk of every fat test to change by \$1 also. An increase of \$1, however, would be a 25 percent increase in the price of 5.0 percent milk currently at \$4, but it would be an increase of 33 percent in the price of 3.0 percent milk currently at \$3. This constitutes an inequity which appears to have no justification.

Froker and Hardin⁷ in 1942 developed a much superior method of determining butterfat differentials, which overcomes the foregoing objections to differentials based on butter prices alone. The principles underlying their method are simple and straightforward. Fluid milk distributors require both the fat and non-fat solids in milk. Relative values of these two types of solids, however, cannot be accurately determined from either their buying or selling prices. Only in plants producing butter and non-fat dry milk solids are these solids marketed and priced separately.

By a series of formulas, Froker and Hardin compute a butterfat differential and a butter-powder value of milk for butter-powder plants, taking correct account of yields of butter and non-fat powder from milk of all fat tests. This differential is then adjusted upward by the percentage by which the fluid milk price exceeds the butter-powder value for milk of the same butterfat test. This step gives effect to the higher values of both types of solids in fluid milk markets resulting from quality premiums and other factors.

Froker and Hardin applied their formulas to data of the Chicago market for 1940 and 1941. The computed differentials averaged 2.4 percent of the average uniform producer price of milk testing 3.5 percent fat.⁸ Misner applied the same formulas to data of the New York market in 1942, computing

⁶ M. S. Jackson, "Butterfat and Total Solids in New England Farmer's Milk as Delivered to Processing Plants," *Journal of Dairy Science*, 19: 171-6, 1936.

⁷ R. K. Froker and C. M. Hardin, *Paying Producers for Fat and Solids-Not-Fat in Milk*, Wisconsin A.E.S. Res. Bul. 143, 1942.

⁸ Froker and Hardin, *op. cit.*, p. 48.

differentials averaging 2.2 percent of the average uniform price of milk testing 3.5 percent butterfat.⁹ Although there was considerable seasonal variation in the absolute amounts of their computed differentials, variations as a percentage of uniform producer prices were slight. Similar relationships were found by this writer in application of these formulas to data of several large Indiana markets for these and more recent years.

The Froker-Hardin method, unfortunately, has two serious defects. These may be the principal reasons why it is not now generally used. The formulas require cost data for butter-powder plants which are not readily available and are difficult to obtain.¹⁰ The series of formulas is complex. Farmers probably would not find them easy to understand and they hardly would be able to check monthly market reports to determine causes of any change in the butterfat differential. A simpler procedure establishing differentials which, for practical purposes, are of the same magnitude definitely is preferable.

Simple Percentage Differential

A simple percentage of the uniform producer price can provide producer butterfat differentials with all of the advantages of the Froker-Hardin method plus simplicity of administration.¹¹ Briefly, the merits of the simple-percentage method are:

(1) It is simple to administer and easy to understand. No complex formulas are required to compute differentials, and all data needed to compute them are available to the market administrative agency in reports now received by it under present market procedures.¹²

(2) It is flexible in operation. Differentials rise and fall in absolute amounts with all, and not merely one, of the factors causing the uniform producer price to change. In midwestern markets it can set differentials close to butterfat values in the spring and higher values in the fall when surpluses over strictly fluid needs are small or nonexistent.

(3) The simple percentage can be set so that it produces differentials close enough, for practical purposes, to results of the Froker-Hardin formulas. As noted above, differentials of 2.0 percent to 2.2 percent of the uniform price of milk testing 4.0 percent would do this.

⁹ Misner, *op. cit.*, p. 49.

¹⁰ These are complete costs of processing and marketing butter and non-fat milk powder per 100 pounds of raw milk used (exclusive of costs of the milk) and direct marketing costs, as peculiarly defined by Froker and Hardin, for each of the two products.

¹¹ The writer lays no claim here to originality. Misner, *op. cit.*, appears to have been the first to develop this procedure.

¹² To compute the differential and the uniform producer price the following two equations are needed (assuming a differential of 2.2 percent of the uniform price of milk testing 4.0 percent fat): $P_u = P_a - 10(T - 4.0) (.022D)$ and $D = .022P_u$, where P_u is the uniform producer price at the basic fat test; P_a is the average price at the average test of milk deliveries, i.e., total dollars received from dealers divided by total hundredweight of milk delivered to dealers; T is the average test of all producer milk deliveries; and D is the producer butterfat differential per point.

(4) These same percentages appear to be about equal to percentage changes in production costs of milk per point of fat variation from 4.0 percent. Such differentials, therefore, would be equitable to producers of milk of all fat tests in terms of both relative market values and production costs.

Finally, (5) the percentage may be altered in order to induce changes in the average fat test of producer milk deliveries to a market. A slightly higher percentage than 2.2 percent where the uniform price is quoted for milk testing 4.0 percent (and about 2.5 percent where the pricing basis is milk testing 3.5 percent) probably would induce a rise in average butterfat tests of milk deliveries. A lower percentage probably would have opposite effects.

The percentage used in a particular market should depend, in large measure, on the policy established relative to changing or maintaining the level of the average market butterfat test. In the short run, the objective of equity to producers may need to be considered secondary in importance to the objective of achieving the desired average fat test of deliveries to dealers. Over a considerable period of years, however, the percentages of the uniform price required to achieve both objectives can be expected to be about equal, and roughly of the magnitudes indicated above.

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EFFECT OF ORDER ON CHOICE*

DOES the order of possible replies affect respondents' ranking of alternatives?

In a combination farm record-mail survey study designed to appraise the effect of various socio-economic factors on the numbers of hens kept and marketing practices followed by Iowa farm record cooperators, it was decided to test the effect of the order of appearance on selection by these producers. A question was included in the mail survey concerning factors which the cooperator would consider in determining the number of baby chicks to buy. Three orders of possible replies were used. These three orders are designated as Arrangements I, II and III. Arrangement I was sent to the first name on the mailing list, Arrangement II to the second name, Arrangement III to the third name and then repeated throughout the mailing list. There were five record cooperator groups in five sections of the state. The mailing list within each group is kept on a geographical basis. Therefore all arrangements were evenly distributed within each group as well as between groups.

The returns on the mail questionnaire were relatively high—58.6 percent of the 754 cooperators sent in usable replies.

* Journal Paper No. J-1490 of the Iowa Agricultural Experiment Station, Ames, Iowa Project No. 1029. The author is indebted to Paul Homeyer and Emil Jebe of the Iowa State College Statistics Department for suggestions on methods. The author is now at the Pennsylvania State College.

TABLE I. PERCENTAGE DISTRIBUTION OF FACTORS CONSIDERED MOST IMPORTANT IN DETERMINING NUMBER OF CHICKS TO BUY, FARM RECORD COOPERATOR SAMPLE, BY ARRANGEMENT ORDER

Factor	Arrangement I	Arrangement II	Arrangement III	All arrangements
Size of laying house	15.9	19.7	16.6	17.4
Size of brooder house	13.8	20.4	11.7	15.4
Combination of brooder and laying house sizes	6.2	6.6	4.1	5.7
Total facility	35.9	46.7	32.4	38.5
Egg price outlook	4.8	3.9	6.9	5.2
Egg-feed price ratio, Jan.-Mar., 1949	2.1	2.6	0.7	1.8
Egg-feed price ratio, outlook	2.8	2.6	6.2	3.8
Price of feed, early 1949	1.4	0.7	2.8	1.6
Total cost-price*	13.1	11.2	19.3	14.5
Competitive factors	2.1	1.3	2.8	2.0
Availability of family labor	5.5	4.6	2.1	4.1
Availability of hired labor	2.8	0.7	0.0	1.1
Ability to get early chicks	0.0	0.7	0.0	0.2
Total labor and competitive	10.3	7.2	4.8	7.5
All other factors	0.7	0.7	2.1	1.1
Raise same number each year	4.8	3.3	7.6	5.2
Plan to raise none next year	2.8	2.0	2.1	2.3
Checked but not ranked or no answer	12.4	9.9	12.4	11.5
Keep no chickens	20.0	19.1	19.3	19.5

* Too few persons ranked egg price in current year, chicken price outlook, etc. to list separately.

Returns for each question arrangement approximated one third of the total returns. The exact percentages of the returns for each arrangement, in numerical order, were: 32.8, 34.4 and 32.8.

Facility factors were oftenest ranked most important and cost-price factors were mentioned as second in importance in all three arrangements. However, in Arrangement II, facility factors appeared at the top of the page, while in the other two arrangements, these factors were farther down on the page. A considerably greater percentage of the respondents who had Arrangement II ranked facility factors as most important than did those with either Arrangements I or III, in which facility factors were farther down on the page.¹

In Arrangement III, cost-price factors appeared at the top of the page. The group with this arrangement ranked these factors as most important more often than those with Arrangement II in which cost-price factors appeared below facility factors.

The factors selected as second in importance were distributed in the same sort of pattern as that for the most important factor.

It is apparent that order of arrangement of suggested answers affected the ranking on this question. Although this was a mail questionnaire, it is

¹ These results represent the population of respondents. Therefore the differences are not subject to sampling fluctuation and tests of significance are not in order.

probable that question arrangement would also affect answers in personal interviews.

The percentage distributions of factors ranked most important, by question arrangement, are shown in Table I.

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A FURTHER COMMENT ON PROFIT MAXIMIZATION IN FRYER PRODUCTION*

THE previous article on the subject of securing an economic optimum (money profit maximization) for a given lot of fryers indicates that under the assumed conditions, positive net returns to management exist when the weight of the fryer is within the range of 2.37 pounds to 3.43 pounds.¹ The net revenue to management per bird function takes the parabolic form²

$$(1) \quad y = \frac{1}{4\alpha} X^2.$$

The relationship between weight of fryer and net revenue to management per bird is illustrated in Figure 1.

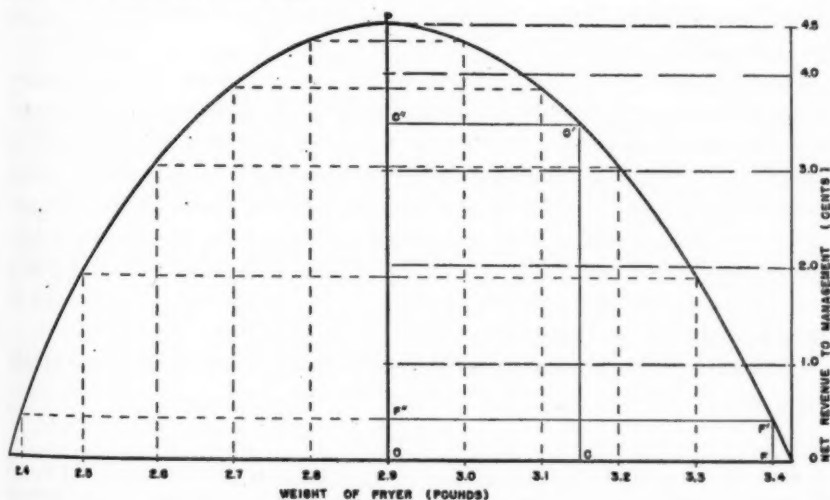


FIG. 1.—NET REVENUE PER FRYER WITH VARYING MARKETING WEIGHTS.

* Scientific Paper No. 996, Washington Agricultural Experiment Stations, The State College of Washington, Pullman.

¹ E. L. Baum and H. G. Walkup, "Economic Considerations in Fryer Production and Marketing in the Pacific Northwest, this *Journal*, Vol. 33, No. 1, February 1951. The cost of labor inputs by the entrepreneur was included in the calculation of variable costs.

² The net revenue to management function is best described by the equation:

The typical commercial fryer producer in the Pacific Northwest raises from 50,000 to 100,000 fryers annually. The size of each lot of fryers will ordinarily vary from 10,000 to 15,000. It is the contention of industry people in this region that fryer producers are working under a condition of the narrowest operating margin that has existed within the past two decades. Hence, the differences in net returns to management for the typical commercial fryer producer in the Pacific Northwest revolve about his ability to terminate the production period of the fryer at the profit maximizing weight. Total returns to management depend to a marked degree on the number of birds raised, since profit maximizing in the fryer industry involves the consideration of the sum of technical and economic input-output rates of the individual birds. Thus the small profit per bird, when multiplied by the 10,000 birds per lot, makes up substantial earnings worth seeking.

In our analysis, the price per pound of liveweight fryer is treated as a constant—28 cents per pound throughout the profitable weight range. Careful study of market news reports for major markets in the Pacific Northwest and discussion with industry representatives indicate that over the fryer weight range of $2\frac{1}{4}$ to 4 pounds, there exists a uniform market price. Marketeers attempt to discourage the production of heavy fryers (approaching the weight of roasters) by not offering price premiums for the heavier fryers. In the Pacific Northwest the poultry industry experiences strong consumer resistance to "ready-to-cook" fryers exceeding $2\frac{1}{2}$ pounds dressed weight.

The maximum possible net returns to management from a 10,000 bird lot, in our example, at 4.5 cents per bird, is \$450 if marketed at 2.9 pounds per bird (at point 0 in Figure 1). In case the fryer weight is increased to 3.15 pounds (C in Figure 1), the net returns decline to \$348; if increased to 3.40 pounds (F in Figure 1) the net returns decline to \$43. In other words, a condition of marked diminishing returns exists soon after the optimum marketing weight is passed. The time involved in increasing the bird weight from the optimum net revenue position to a condition of negative net returns is within 10 to 12 days.

Commercial fryer producers in the Pacific Northwest usually terminate the

$$y = K - \frac{1}{4\alpha} X^2$$

where y = net revenue to management per bird; α = the distance between the vertex and focus of the parabola (0.9375 cents, in this instance); X = difference in actual weight from the optimum (1 pound = 7.8125 inches, in this instance); K = optimum net returns per bird (4.5 cents in this instance). For example, if the fryer is allowed to grow one quarter of a pound past the optimum weight of 2.9 pounds, i.e., the fryer is marketed at 3.15 pounds, we secure the following calculation:

$$y = 4.5 - \frac{(7.8125 \times 0.25)^2}{3.75}$$

$$y = 3.48 \text{ cents per fryer.}$$

TABLE I. NET RETURNS TO MANAGEMENT, PER FRYER AND 10,000 FRYER LOT, WITH VARYING WEIGHTS

Weight of fryer (pounds)	Deviation from optimum weight (pound)	Net returns to management		Incremental change in net returns to management (dollars)
		per fryer (cents)	per lot (dollars)	
2.4	-0.5	0.43	43	
2.5	-0.4	1.90	190	147
2.6	-0.3	3.03	303	113
2.7	-0.2	3.85	385	82
2.8	-0.1	4.34	434	49
2.9	0	4.50	450	14
3.0	0.1	4.34	434	-14
3.1	0.2	3.85	385	-49
3.2	0.3	3.03	303	-82
3.3	0.4	1.90	190	-113
3.4	0.5	0.43	43	-147

feeding period when the fryer is more than one fourth pound and often approaches one half pound above the optimum economic weight. It is obvious that under such managerial practices losses to management is an important determinant in the level of stability that exists within the industry. This condition is due to:

- (1) Lack of knowledge of the nature of the relevant production function.
- (2) Imperfect knowledge of the effects of pertinent cost-price relationship.

(3) Inability to secure a satisfactory market at or near the time the economic optimum weight is attained where knowledge of (1) and (2) exists. This may result from (a) inadequate contractual arrangements with processors, and (b) the inflexibility of daily plant capacities for processing fryers.

The above analysis stresses the need for a highly vertically integrated system that embraces the production decision-making processes of primary (farm), secondary (processor), and tertiary (distribution) production. Considering the size of our fryer production enterprises (50,000 to 100,000 birds per year), the relative returns accruing to management are of considerable importance to the profitability of fryer production, if knowledge governing entrepreneurial decision function is made more perfect.

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* Review published in this issue.

BOOK REVIEWS

The Economics of Collective Action, John R. Commons. New York: Macmillan Company, 1950. Pp. xii, 414. \$5.00.

For a number of years it was widely known that Commons was engaged in writing a simplified version of his *Institutional Economics*, which appeared in 1934. Sixteen years were to elapse, however, before the restatement, entitled *The Economics of Collective Action*, finally went to press. With the help of former students, friends, and associates, and especially that of Professor Kenneth H. Parsons, Commons succeeded in finishing before his death in May, 1945, his explanation "in simple terms" of "the essentials of a complex system of thought." Commons' final work is not in essence a rewriting of the whole of his *Institutional Economics*; instead it is a restatement of only certain basic portions of that earlier work. As such, it necessarily contains many of the virtues and limitations of the original study of institutional economics, which some of Commons' own students felt should never have been published because of what appeared to them to be its somewhat undigested state. Even though one does not take a side on this issue, he can agree that Commons' *Institutional Economics* has not had as wide a reading as it really merits. The interesting question now is, What will be the reception accorded to the new *Economics of Collective Action*?

Commons' final study is divided into four parts which are condensed into the limited space of some 294 pages. Part I on "Economic Activity" emphasizes what is basic in Commons' economics, that is to say, the importance of collective action in control of individual action. Attention is also drawn to transactions as the basic unit of investigation. Part II reviews in brief fashion the five fundamental principles of investigation relating to sovereignty, scarcity, efficiency, futurity, and custom, which play such an important role in Commons' analysis of the American capitalistic system. In Part III, entitled "Relativities," Commons explains his methodological procedure which takes the form of the comparative method. This is the method of the administrator who ferrets out what is similar or common ground amid the many differences in interest and viewpoint of all the parties to an economic conflict. Having briefly summarized his views on the areas, units, and methods of economic investigation, Commons in the fourth and last part of his restatement turns to what he describes as "Public Administration in Economic Affairs." This is the field of economic analysis which he regards as the special province of his investigational or collective economics. It is the area of study which he believes should be added to orthodox economics to achieve that proper rounding out of political economy to which he makes reference early in his *Institutional Economics*.

The main question that will be asked of Commons' last work is, Does it

achieve its purpose of providing a simplified, readable, and understandable summary statement of his contributions to economic science? There can be no argument about Commons' success in selecting and bringing into small compass the most significant portions of his earlier and much larger *Institutional Economics*. All the basic concepts and generalizations of the earlier work reappear in *The Economics of Collective Action* without the lengthy discussions relating to the historical origins of economic ideas and other digressive material, which did so much in his earlier work to cover up the essential points that Commons was trying to convey to his readers. In addition, Commons' new volume shows considerable improvement in literary style. Gone for the most part are the involved and awkward sentences which marred Commons' earlier exposition of institutional or collective economics.

The question remains whether or not Commons' restatement provides a satisfactory explanation of his theoretical position. Does the reader get a well-constructed, summary statement of what, after all, is the essential position of Commons as an institutional economist? On this point the restatement does not do as well as it does with respect to the points already discussed. It must be admitted that Commons never possessed much of a gift for self-explanation. He was very good in probing the minds of others, but when it came to revealing his own inner thoughts the methods of the groping interviewer failed him. Anyone who has read Commons' autobiographical study, *Myself* (1934), knows how bafflingly inadequate he could be when it came to interpreting himself to the outside world.

The deficiencies of Commons' *Institutional Economics* which reappear, albeit in a more attenuated form, in *The Economics of Collective Action*, are due to the fact that Commons goes about his work in what Selig Perlman has described as the groping, halting, and somewhat directionless way of the interviewer. In his *Institutional Economics* Commons freely intermixed three very worth-while objectives: a criticism of traditional economics, an explanation of the new collective economics, and a discussion of a program of action for saving American Capitalism. Having no clear-cut plan of presenting his material, and moving quite freely and sometimes quite unexpectedly from topic to topic, Commons succeeded in 1934 only in writing what may be described as something of an intellectual potpourri. The ingredients were usually of a very high order, but one sometimes had difficulty in discovering to what they all added. *The Economics of Collective Action* does not succeed in eliminating the causes of these important defects in Commons' earlier work.

In place of a smooth flow of general exposition the reader is presented in Commons' last volume with something that is much too episodic in nature to be classed as a good example of a general treatise. For evidence to support this view one can turn to Part IV on "Public Administration in Eco-

conomic Affairs," which Professor Parsons quite properly regards as the key part of the volume. Instead of finding a general treatment of this very important economic problem, the reader is introduced to Commons' analysis of three highly specialized problems in the public administration of economic activity, namely, agricultural, credit, and capital-labor administration. One can readily imagine how very differently Thorstein Veblen might have analyzed the same topic. Veblen was essentially a general expositor, while Commons always remained the interviewer, the case handler, and the research expert. In *The Economics of Collective Action* it is clear, even to the last, that general exposition continued to be elusive for Commons.

Although it is quite apparent that Commons never could do ample justice to himself when trying to reveal his mind to others, it is good to have this simplified statement of what he took to be the essentials of his own system of economic thought. There will doubtlessly now be a good number who will read *The Economics of Collective Action* in preference to Commons' ponderous *Institutional Economics*. In doing so they will have the beneficial experience of coming into contact with one of those rare minds in the history of American economic thought which has done much to lift economics from the restrictive mold of inherited orthodoxy. We are greatly indebted to Professors Parsons and Perlman, and to the many others without whose cooperation this volume would never have been published.

ALLAN G. GRUCHY

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The Population of India and Pakistan, Kingsley Davis. Princeton: Princeton University Press, 1951, \$7.50.

This large volume is the most comprehensive analysis of the India-Pakistan sub-continent from a demographic point of view known to the reviewer. The uniqueness of this piece of work rests in the attempt to inscribe demographic materials upon the backdrop of Indian social structure. Considering the intricacies of the many cultures subsumed in this Asian sub-continent, the task of bringing "sociological illumination" to demographic data, often of questionable reliability, is a task of staggering dimensions. However, Davis has had the courage to attempt just this, sometimes with brilliant results. It is at the point of sociological illumination rather than demographic analysis that most readers will wish to raise questions. One is disappointed and puzzled by the nature of the illumination provided in statements like the following: "If the Hindu social order could be summed up in a single sentence, it would be this: It is the most thoroughgoing attempt known in human history to introduce absolute inequality as the guiding principle in social relationships. Such an attempt cannot completely succeed, any more than an attempt to introduce absolute equality." (p. 170).

In regard to the crucial question of India's population growth, Davis holds the view that the situation will become worse before it becomes better. Applying the average natural increase during the years 1921-41, the author estimates that India-Pakistan will have an enormous population of 800 million by the year 2000. While the continued improvement in mortality conditions is not without uncertainties, a rapid curtailment of the birth rate appears to be the most difficult problem. The position of Davis, at one point, is expressed as follows: "Our argument is not that further declines in the death rate are impossible or improbable, but rather that a continued low death rate without a modern economy and a civilized fertility is inconceivable." (p. 61).

The data relating to differential fertility are encouraging from the point of view of eventual reduction, and probably lead Davis to the conclusion that the most expedient solution to India's population problems is that of rapid industrialization. The differential fertility data show that rural-urban differentials are present and are correlated with size of city. However, the magnitude of this differential over a period of time has remained relatively stable. The analysis also shows such indexes as social status, occupation, and literacy to be inversely correlated with fertility.

It is the opinion of the reviewer that this volume contains the best analysis of India available of the demographer's stock-in-trade, namely, mortality, fertility, and migration. In addition, sections dealing with the processes of urbanization, caste organization, religion, the economics of agriculture and industrialization as well as the demography of the recent partition, will find interest far beyond the disciplines of demography and sociology. It will certainly be of enormous utility to agricultural economists and others especially interested in aiding underdeveloped areas of the world. The book itself is carefully organized and the presentation is lucid. It contains exceptionally fine maps and charts. A gigantic literature bearing upon the Indian sub-continent has been sifted and often used to reinforce and illustrate the author's position.

J. ALLAN BEEGLE

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Vertical Farm Diversification, D. Howard Doane. Norman, Oklahoma: The University of Oklahoma Press, 1950. Pp. xv., 184. \$2.75.

It would be obvious to any reader that the author of this book has a long, rich, and practical background in the field of farm management, for he has drawn considerably from his personal experiences in the field and has cited numerous cases of successful "vertical farm diversification" at various levels of intensity.

The text is divided into 15 comparatively short chapters which are interesting, well illustrated, and easily read. Many readers will be intrigued

with the presentation. The approach is direct and the assumption throughout is that vertical diversification pays. The book probably was written with a view of re-emphasizing the subject and of provoking discussion and thinking in this field.

The author assumes generally that most farmers can more effectively and economically perform many of the functions of processors and distributors. The farmer has the advantages of proximity to the raw product and can claim for himself the profits of processing and distribution which for the most part are costs to the processors and retailers. The author states that the processor-distributor buys at his price the raw product from the farmer. To this he adds his processing and distributing costs and sells at his price to the consumer. So long as the farmer stays in horizontal diversification (produces only the raw product) he remains in the non-fixed-margin group, while in vertical diversification he joins those who can demand a fixed margin, a profit. See pages 8, 27, 28, 79, and 156.

Vertical farm diversification is considered to be any extra steps beyond raw production taken by the farmer. It may range from grading and packaging eggs or fruit and selling the product at a farmyard stand, to complete processing of a farm product and all its by-products and distributing and retailing them directly to consumers. The latter may run into a highly organized cooperative doing considerable business and requiring large amounts of capital.

The author outlines carefully in several places many of the steps farmers may take in vertical diversification. The following is an example taken from the chapter "The Farmfac":

Livestock

Fattened	Processed	Specialty products
Butchered	Sausage	Casings for sausage
Fresh meat sold	Loaf	Hides
Canned	Corned	Leather
Frozen	Pickled	Wool
	Tankage	Mohair
		Bristles

These are all steps above production of the "primary" or "raw" product. Opportunity for many steps in the diversification process, of course, are not open to all farmers. The author, however, implies that no farmer should stop with "horizontal diversification," and that the field is unlimited to all farm operators regardless of size, type, or numbers of operating units.

Accordingly, a host of opportunities are available to farm operators both large and small who have imagination and foresight. The advantages of vertical farm diversification are presented as many and varied. Diversification will cure, at least in part, many of the ills in agriculture and in in-

dustry. It will save much vital produce that now is lost, it will cut man labor and other costs by reducing duplicating processes, it will furnish farm and rural people with more profitable employment, it will keep more people in the rural areas where "primary" production takes place and where living and production costs are lower, and it will reduce immeasurably the wastes in transportation. Not least of all, it might be considered a program or a means of stabilizing incomes of farmers and of obtaining for them an equitable share of the national income. See pages 176-178.

Although the subject "Vertical Farm Diversification" is not new, it is one which probably will receive more and more attention from the farm operator, farm manager, and farm landlord.

WYLIE D. GOODSSELL

Bureau of Agricultural Economics

Economic Fluctuations in the United States, 1929-1941, Lawrence R. Klein.

Cowles Commission for Research in Economics Monograph No. 11. New York: John Wiley & Sons, Inc., 1950. Pp. xi, 174. \$4.00.

Statistical Inference in Dynamic Economic Models, Cowles Commission Research Staff Members and Guests. Edited by Tjalling C. Koopmans, With Introduction by Jacob Marschak. Cowles Commission for Research in Economics Monograph No. 10. New York: John Wiley & Sons, Inc., 1950. Pp. xiv, 438. \$6.00.

It is, perhaps, fitting that the two long-awaited monographs of the Cowles Commission should be accorded a combined review. Monograph No. 10, an outgrowth of a Cowles Commission conference on statistical inference in economics held at the University of Chicago in January 1945, is concerned primarily with the statistical implications of the premise that economic data are generated by systems of simultaneous, stochastic, and dynamic relations. By and large the discussion in this monograph, which is addressed, one supposes, primarily to mathematical statisticians, and in which the emphasis is largely on formal mathematical proof, appears to be centered on the following problems: *Given* a system of equations subject to random disturbances (a) under what conditions can the unknown parameters of the system be estimated (identification), and (b) how can estimates of these parameters (estimates having certain desirable properties) be obtained from observations on the variables in the system? In Monograph No. 11, which is an empirical econometric study, a different range of problems has to be faced: (a) the equation system has to be given content which bears some resemblance to the economic reality the system is presumed to "structure"; (b) measurements of the variables entering into the system must be obtained, and in the (inevitable) absence of certain relevant data, the system must be modified (or compromised) accordingly; (c) tests (presumably supplied by the statistician but actually not yet available) must be applied

to determine the adequacy of the model. Monograph No. 10 is devoid of economic content; Klein's book, in its intent at least, is a substantive contribution to economics. Both monographs should be of vital concern to research personnel in agricultural economics—Monograph No. 10 because it presents in hitherto unavailable detail new ideas and tools for the analysis of economic data, and Monograph No. 11 as the first detailed lesson in the application of the new tools.

The larger monograph is a compilation by 10 different authors of 18 papers and brief notes arranged in three parts dealing respectively with simultaneous equation systems, problems specific to time series (in which the equation system framework is temporarily abandoned), and specification of hypotheses. A 50-page paper by Marschak, which this reviewer found indispensable for orderly ingestion of the main contents, prefaces the discussion. The principal paper in this collection ("Measuring Equation Systems" by T. C. Koopmans, H. Rubin, and R. B. Leipnik) treats in monographic length (184 pages) complete systems of equations which are linear and stochastic (disturbances independently distributed at different points of time), and which contain endogenous (determined within the system), exogenous (determined outside the system) and lagged endogenous variables. Identification, as a problem prior to estimation, is considered first (pp. 69–110). Necessary and sufficient conditions for identifiability in linear systems are derived under *a priori* restrictions, which consist of linear relations binding the coefficients of the same equation. The effect of other types of constraints (linear relations connecting coefficients in different equations and restrictions on the distribution of disturbances) is also discussed. Maximum likelihood estimates of the parameters of a complete linear model which utilizes all of the *a priori* information are derived, assuming, of course, that the disturbances are jointly normally distributed (pp. 110–153). The last and longest part of this basic paper (pp. 153–257) presents iterative procedures for the computation of maximum likelihood estimates made necessary by the fact that the maximization of the likelihood function under constraints leads to equations which are not linear in the estimates and which apparently cannot be solved by direct methods.

Various aspects of statistical estimation in a system of stochastic relations are touched upon in other papers. Few of the papers are fully developed: four are brief discussions given at the conference and written up apparently without much elaboration; two papers are summaries of studies that have been published in fuller form elsewhere; several other papers do not go beyond presenting and elaborating a few definitions and/or treating one or two simple examples. It is possible only to indicate briefly the subject of a few of the papers which this reviewer found particularly interesting. The specification of variables as endogenous and exogenous for purposes of statistical estimation is discussed in a stimulating paper by Koopmans

("When Is a System Complete?"). As the matter stands now, it would appear that equally large (or larger) systems may be required for the measurement of individual commodity demand and supply functions as for the estimation of the structural parameters of the macro-system of which the individual commodities are but a small part. In another stimulating paper Koopmans explores the advantages of using a continuous time dimension ("Models Involving a Continuous Time Variable"). Specification of random disturbances as nonadditive (as coefficients of the observed variables) is considered in a brief paper by L. Hurwicz ("Systems with Nonadditive Disturbances") and in a brief note by H. Rubin ("Note on Random Coefficients"). This more general specification of disturbances is probably more realistic for many economic problems, but it does give rise to difficult statistical and computational problems, particularly in a simultaneous equation system. The results obtained in another paper by Hurwicz ("Least Squares Bias in Time Series") suggest that maximum likelihood estimates of structural parameters may be seriously biased in samples of size ordinarily available for economic studies utilizing annual data.

Klein's study is a result of his work at the Cowles Commission in 1944-1947, the years during which the new approach was being rapidly developed, and the book bears the imprint of this creative and enthusiastic period. The organization of this slim but meaty volume is simple. Following a brief introduction (Chapter I) to the concepts and terminology of the simultaneous equation system approach (singularly devoid of qualifications and "hedges"), Chapter II attempts to provide the theory in terms of which economic content is to be given the equation systems. The economic system is viewed as made up of households and business firms interacting in the market; and the equation system must, therefore, reflect the behavior patterns of these decision-making units and the market constraints. In Chapter III, estimates of parameters of three models, each model more or less derived from the theory provided in the preceding chapter, are given for the period 1921-1941, and certain tests are applied. The first two models are highly aggregative and are presented largely as illustrations; Model III, consisting of 12 structural and four definitional equations, is given more substantive status. The last chapter (Chapter IV) provides a brief discussion of the adequacy of various data adjustments which had to be carried out in the course of the study.

An appraisal of Klein's able pioneering study must naturally center on the adequacy of the statistical models presented as explanations of economic fluctuations during the interwar period. And here it must be acknowledged that rigorous statistical tests of simultaneous equation models are not as yet available. In fact, little is known about the statistical properties of structural estimates in small samples, and what little is known is not particularly promising. The tests applied by Klein, such as "reasonableness"

of signs and magnitudes of coefficients, independence of residuals over time (the test used by Klein is technically suspect), and "smallness" of residuals provide suggestive indications, but can hardly serve as adequate criteria. There remains, of course, the possibility of testing the predictive power of models for years not included in the study, a possibility which is not explored in Klein's book; but here, too, the verdict may not be unambiguous. The fact that in subsequent and as yet unpublished tests for 1946, 1947, and 1948, Klein's Model III and a revised form of this model were not found to be completely satisfactory may or may not have a bearing on the adequacy of this model for the interwar period. Whatever the ultimate verdict, however, there is little doubt, at least in this reviewer's mind, that much could be learned about our economy and techniques of analysis by a continuation and extension of the work begun so ably by Klein.

G. M. KUZNETS

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Rural Social Systems, Charles P. Loomis and J. Allan Beegle. New York: Prentice-Hall, Inc., 1950. Pp. iii, 873. \$6.75.

This book is designed for use as a general text for classes in rural sociology. Although perhaps a bit difficult for beginning students, it will fill an important need for intermediate and advanced courses. It differs from the usual text in this field in that it attempts to fit the traditional materials into a logical conceptual framework of sociological theory. The central frame of reference is what the authors call "social systems." These are viewed as social interactions and the cultural factors which form the structure for these interactions. On the one hand, a social system may be "considered as concrete, or a cooperative social structure such as a football team, a Farm Bureau local, a family, a church congregation, a school, or even a silo-filling ring. It can be shown that these organizations are composed of persons who interact more with members than with non-members when operating to attain their objectives" (p. 4). On the other hand, a social system may be "viewed as abstract, or one in which patterns of relationships prevail from generation to generation and from region to region. Viewed in this way, social systems consisting of elements or patterns that persist do not require that specific persons be considered as parts of the system" (p. 4).

After defining "social systems", the authors proceed to list what they regard as the more important elements of social systems. These are: (1) Roles, or that which is expected of individuals in given situations; (2) Status, or the ranking given individuals, based upon what traits and qualities that are rated high and low by members of the group; (3) Authority, or the right and power of individuals to influence others; (4) Rights and duties; (5) Ends and objectives; (6) Norms, or those rules which govern the appli-

cation of means in the accomplishment of the ends or objectives; (7) Territoriality.

Despite these rather complicated definitions, the book deals essentially with systems of rural social interaction and covers about the same subject matter that one might expect to find in a competent work entitled *Rural Social Institutions*. Thus the major divisions of the book, each of which contains several chapters, are devoted to the following topics: the family and informal groups, locality groups, educational groups, political and occupational groups, and rural service agencies.

The authors feel that variations in both social structure and value orientations of social systems call for an instrument which will measure these contrasting differences. They point out the limitations of the traditional "sponge" type concepts which classify groups into dichotomies such as *Gemeinschaft* and *Gesellschaft*, mechanical and organic solidarity, or familistic and contractual societies. They develop a 10-point scale for use with the ideal types developed by Tönnies, "familistic *Gemeinschaft*" and "contractual *Gesellschaft*." The familistic *Gemeinschaft* "embraces those relationships and associations arising from an emotionally based desire or inclination to associate"; the contractual *Gesellschaft* "grows out of rational and calculated consideration of the ends to be served by the associations." The *Gesellschaft* tends to be more rational, more functionally specific, more secular and less concerned about outside roles of members than is the *Gemeinschaft*. A point on the scale is arbitrarily designated as 0; five points to the left is found the pure familistic *Gemeinschaft*; five points to the right is the opposite ideal type of contractual *Gesellschaft*. The problem is to rate any given social system on this scale indicating the degree to which it approaches one or the other extremes of the ideal type. Composite ratings by students and others were secured for certain organizations to illustrate how the scale may be used.

In the opinion of the reviewer, there are at least two difficulties which are manifest in this approach. First, since only the extremes on the scale are clearly defined, the other nine points (including 0) turn out to be rather nebulous and imprecise. After the first few chapters the authors themselves tend to fall back onto the old dichotomy of F. Tönnies which was criticized as being inadequate in the beginning. Secondly, possibly because each social group, organization, or institution is regarded as a social system, each is treated separately and there is no attempt to show how they fit together to form a collective whole (society or social system in the usual sense of the term). This would seem to be an important, though difficult, task, if we are really to understand social systems.

Although the authors may not have improved much on the original dichotomy of Tönnies, they have produced a volume which is stimulating and logically developed; and one which summarizes in systematic fashion

most of the empirical studies bearing on the topics included. Especially commendable is Chapter 5, dealing with "The Informal Group." This is an analysis of friendship and clique groups which makes a definite contribution to the field. The work is well documented. It contains 208 illustrations, a foreword by Carl C. Taylor, a glossary and two appendices. It is undoubtedly one of the most useful texts now available in rural sociology.

N. L. WHETTEN

The University of Connecticut

Studies in Income and Wealth, Volume 12, Conference on Research in Income and Wealth. New York: National Bureau of Economic Research, 1950. Pp. xiv, 585. \$6.00.

The development of a national balance sheet and the problems in accounting and measurements of value which go with it are the subjects of this conference on wealth estimates. The basic data appropriate for constructive wealth estimates have grown since official estimates were discontinued in 1922, and the conference is timely in reopening the discussion on the importance of social accounting for improved economic evaluation of the workings of the economy. The attractions of a double entry balance sheet are obvious as an accounting procedure, but more work on its use for economic analysis is necessary before time and effort are expended on the many debatable assessments which are involved. Gainsbrugh¹ lists the following as some of the prospective demands for and uses of wealth data:

- I. To determine the effect of war on
 - (a) A nation's debtor-creditor position
 - (b) Erosion of capital goods in civilian industry
 - (c) The changes in assets and liabilities in the accounts of business, consumers and the government.
- II. As a guide in framing policy toward national resources.
- III. To compare public and private ownership of assets.
- IV. As a guide to framing tax policy.
- V. To correct the present way of drawing the line between savings and consumption.

To study and pose the problems of social accounting, tentative exhibition balance sheets were prepared as guides to each sector specialist and to serve as standards for appraisal of the contents of the volume. The major controversial issues discussed centered about: (1) comparisons of the two owner groups, household and the federal government; (2) the omission of natural resources by confining attention to man-made tangible objects; (3) measures of significance by comparison with a model; (4) insufficient information on welfare concepts.

Part I consists of two discussions: "Measuring National Wealth in a Sys-

¹"The Need for National Wealth Estimates," Martin K. Gainsbrugh. A paper presented before the Conference on Research in Income and Wealth. November 1946.

tem of Social Accounting" by Raymond W. Goldsmith and "Uses of National Wealth Estimates and the Structure of Gains" by A. G. Hart. Social accounting, Goldsmith states, involves the recasting of accounts to conform with a set of standard rules derived from economic theory. His paper is concerned with the derivation of the national balance sheet with emphasis on tangibles. Hart's paper deals with claims and emphasizes two needs for national accounting: (1) to show how current operations of firms and households are influenced by the composition of their assets and liabilities and (2) quantitative relationships linking investment with the stock of capital assets, the flow of output and financial conditions.

The discussion which follows raises many mechanical and theoretical issues and Gardiner C. Means is worth quoting when he writes "The most perfectly designed system of social accounting would not yield an estimate of national wealth. It could provide a starting point for applying economic concepts . . . to arrive at an estimate. . . ." He recommends the Conference limit its activity to social accounting.

Part II, "Wealth Estimates for Various Sections". This section is devoted to the compilation of balance sheets for agriculture and for manufacturing enterprises with additional essays on consumers assets, tangible assets of public utilities, the government component, land utilization and subsoil wealth.

Roy J. Burroughs estimates assets and claims items in the agricultural segment. Relationship with the national balance sheet presents some problems on claims. He estimates real estate mortgages, non-real estate debts and the rights and claims of proprietors, other than creditors, having interests in the farming assets. In the delineation of the agricultural sector he adopts the census classifications. Using the B.A.E. Balance Sheet of Agriculture technique, he estimates total assets at current market prices. Then he makes an interesting comparison with a balance sheet from which all changes in assets directly attributable to variation in prices from January 1, 1940 have been removed. Using 1939 prices, physical assets in agriculture increased only four percent between 1939 and 1946. Real estate value has remained fairly constant with soil depletion offset by new buildings and improvements. For further steps in social accounting in agriculture he recommends to those responsible for basic data, refinements in the quality of the aggregate asset and claim estimates for all agriculture and the distribution of operators and farm firms according to size of investment, net worth, location and other significant classes.

Lawrence A. Reuss presents descriptive information of national land use and ownership together with the forest service estimates of market value of forest land in the United States. "The Tangible Assets of Public Utilities" by David A. Rosh provides useful discussion material for the economic evaluation of accounting procedures on wealth estimates, particularly with reference to government owned assets.

This volume is sufficiently challenging to call for continued investigation in the use of national balance sheets as a tool for resource allocation and national house-cleaning, provided agreement can be reached on its limitations. To quote Hart "... our previous skepticism had good grounds; and if we forget these grounds for skepticism, much of our work is likely to go to waste."

J. R. BOWRING

University of New Hampshire

A National Agricultural Policy, Leonard Hastings Schoff. New York: Harper and Brothers, 1950. Pp. 153. \$2.50.

This volume is the third in a series of occasional papers issued by the Columbia University Seminar on Rural Life. The author of this paper is chiefly concerned with public policies aimed at solving (1) the problem of chronic poverty affecting an important segment of American agriculture, and (2) the periodic problem of low and unstable incomes confronting commercial farmers.

The opening chapter analyzes the relationship between technological advance in agriculture and an expanding national product. It is appropriately pointed out that the gains from labor saving innovations involve resource transfers and adequate capital formation to absorb displaced labor.

Chronic low income is set down as a by-product of the agricultural revolution, explained in terms of a land base per farm too small to support modern mechanized techniques of production. Here the analysis is weakened by the failure to emphasize more of the underlying "causes" of low income. Meager resources and outmoded technology are commonly manifestations of more basic economic and sociological forces.

The author, quite properly, recognizes that price supports offer no adequate solution to the fundamental problem of raising the economic productivity of low income families. Accordingly, recommendations are focused on inducing a shift of labor resources out of farming, and on encouraging more efficient farm organization incorporating up-to-date technology. Special emphasis is attached to the role of new capital formation in providing the necessary off-farm jobs.

Probably few agricultural economists would disagree with the general form of the solution proposed. There is some doubt in the mind of this reviewer, however, whether the programs for implementation are sufficiently broad and vigorous to accomplish the task. The author makes an interesting suggestion involving a labor-mobility-assistance program. In spite of the golden opportunity during the past decade, agricultural policy has failed to come to grips with the poverty problem. How to mobilize public support for a general attack on the problem remains a top priority question.

The formulation and analysis of the price and income problems of commercial farmers are not as satisfactory, being unnecessarily repetitious and

not too well integrated. The author is of the belief that a decline in farm prices will generate a fall in aggregate demand and a reduction in the level of economic activity, although it is questionable whether the evidence presented warrants such a conclusion. Price supports at parity are considered one of the most effective ways of preventing depression. Nevertheless, the author's recommendations include flexible price supports based upon the new parity formula and implemented by storage in the case of non-perishables, and by direct purchases and distribution to low income people in the case of perishables.

While there are forceful arguments in favor of flexible supports in contrast to high level rigid supports and in favor of distributing price support acquisitions to low income families as against destruction or diversion to lower valued uses, there are also strong reasons for the use of direct payments rather than direct market supports and for separating storage and nutritional programs from price support commitments. Production and marketing controls are viewed as interfering with the attainment of efficient production. Resource adjustments are to be achieved by revisions in support prices announced in advance of the making of farm plans. While this should encourage shifts in the pattern of production, positive incentives, geared to efficiency standards, may be needed in some cases in addition in the negative incentive provided by a lower price.

On a subject as controversial as public policy, unanimity of opinion is not to be expected. Most readers of this volume, no matter what their personal views might be on agricultural policy, are likely to find major points of agreement and disagreement. In any case, the views expressed by the author should prove interesting reading to anyone whose attention is aroused by the developments on the farm policy front.

DONALD R. KALDOR

Iowa State College

NEWS NOTES

The Agricultural Estimates branch of the Bureau of Agricultural Economics recently held a series of regional conferences—at Chicago, New Orleans, and Salt Lake City—which were attended by members of both the field and Washington staffs.

Ralph L. Baker, formerly of Iowa State College, is now Associate Professor of Marketing at the Pennsylvania State College.

Roy S. Beck, formerly extension economist in Washington State and Vermont, has joined the staff of the Cooperative Research and Service Division, Farm Credit Administration.

Ronald Bird, formerly Bureau of Agricultural Economics' cooperative employee in marketing at the West Virginia University, has transferred to the Tax Section of the Division of Agricultural Finance.

Byron Bookhout is resigning his position at Michigan State College to accept a position with the Crop Reporting Service at Lansing, Michigan, effective May 1.

Richard D. Butler has transferred from the Bureau of Agricultural Economics to the Defense Fisheries Administration.

Guy R. Cassell, Marketing Specialist at North Carolina State College, has been called to active duty with the Marine Corps.

G. H. W. Cavey has resigned from the staff of the Economics Division, Canada Department of Agriculture, Ottawa, to accept a position as Economist with the Department of Transport.

James P. Cavin, formerly Head of the Division of Statistical and Historical Research, Bureau of Agricultural Economics, has transferred to the Division of Statistical Standards, Bureau of the Budget.

Willard W. Cochrane, of the Pennsylvania State College, will join the staff of the University of Wisconsin as a guest lecturer for the 1951 Summer Session.

Co-ordination of research in agricultural economics in Canada is now facilitated by a National Committee on Agricultural Economics. The Committee functions as one of a number of Special Committees under the National Advisory Committee on Agricultural Services. It is made up of 19 representatives of provincial universities and government agencies, under the Chairmanship of Dr. J. F. Booth, Economics Division, Department of Agriculture.

Clarence J. Echterling has accepted a joint appointment as Extension Poultry Marketing Specialist with Purdue University and the Office of Cooperative Extension in Washington. He will be stationed at Purdue University, and will work with the North Central States in poultry marketing.

J. William Firor, Head of the Department of Agricultural Economics, University of Georgia, retired in March because of ill health. Except for the periods of his service in both World Wars, he has been with the University of Georgia since January 1, 1912. With a son, David, he plans to develop a dairy type farm on an 800-acre tract near Athens, Georgia.

Charles E. French, after completing his doctorate at Purdue University, was appointed Assistant Professor of Marketing Research and Extension at that university January 1, 1951.

Robert K. Ganger, formerly a graduate student at Oregon State College, has received a joint appointment with the Oregon State Department of Agriculture and the Bureau of Agricultural Economics, Agricultural Estimates.

F. F. Hill, Cornell University, is Chairman of a committee recently appointed by Governor I. W. Duggan of the Farm Credit Administration to study and make a report on the need for and possible methods of spreading risks among Production

Credit Associations in the United States. Other members of the committee are W. G. Murray, Iowa State College; G. H. Aull, Clemson College; E. L. Butz, Purdue University; R. J. Saulnier, National Bureau of Economic Research; and A. R. Gans, Federal Land Bank of Springfield. The Committee expects to have its report ready by early fall.

Floyd J. Hosking has been elected Executive Vice-President of the Corn Industries Research Foundation of Washington and New York.

The Illinois Farm Bureau Farm Management Service has been expanded in the southern part of the state and now has 3,800 cooperators in 85 counties, with a staff of 19 fieldmen.

Donald R. Kaldor, Associate Professor of Economics, returned March 1 to the staff at Iowa State College, after a year's leave working on an assignment for the Office of International Trade of the U. S. Department of Commerce.

M. M. Kelso of Montana State College spent four months in the fall and winter travelling with his family in New Zealand and Australia, studying the livestock industry and grazing land tenure in those countries.

Harald C. Larsen, formerly with the mortgage section, Division of Agricultural Finance, Bureau of Agricultural Economics, has transferred to the Price Staff Administrator's Office of the Production and Marketing Administration.

H. K. Leckie of the Department of Agricultural Economics, Ontario Agricultural College, has joined the staff of the Industrial and Development Council of Canadian Meat Packers, Toronto.

William F. Lomasney, Extension Marketing Specialist, University of Rhode Island, resigned March 31, 1951, to take a position at the University of Illinois.

H. R. Manery, Assistant Agricultural Economist in the Economics Division, Canada Department of Agriculture, Edmonton, has resigned his position to undertake graduate work at the Agricultural Economics Research Institute, Oxford, England.

John F. Marsh, Division of Field Crop Statistics, Bureau of Agricultural Economics, has transferred to the Economic Stabilization Administration.

Raymond B. Marshall, instructor in Agricultural Economics at Oklahoma Agricultural and Mechanical College, has secured a leave of absence to continue his graduate work at Vanderbilt University.

A. W. McKay, formerly Head of the Fruit and Vegetable Section of the Cooperative Research and Service Division, has been appointed Assistant to the Chief of the Division, Farm Credit Administration.

James Nielson, formerly of Kansas State College, has been appointed Assistant Professor in Agricultural Economics at Michigan State College, after completing residence requirements for the Ph.D. degree at Harvard University.

Homer S. Porteus, Extension Economist in Marketing, the U. S. Department of Agriculture Extension Service, is at Harvard University for the period from February to June. He will be on duty in Washington during the summer, but will return in the fall for further graduate work at Harvard.

Roy E. Proctor is serving temporarily as Head of the Department of Agricultural Economics at the University of Georgia, following Professor Firor's retirement.

George B. Rogers has transferred from the Bureau of Agricultural Economics to the Office of Price Stabilization.

Kenneth Samuels has been made Head of the Fruit and Vegetable Section of the Cooperative Research and Service Division, Farm Credit Administration.

William H. Scofield of the Bureau of Agricultural Economics has been made Head of the Land Values Section in the Division of Land Economics.

Ralph Shaw has resigned from the Cotton and Oilseeds Section of the Cooperative Research and Service Division, Farm Credit Administration, to work with the Metropolitan Life Insurance Company on their farm loan program in the Memphis area.

J. B. Smith, who recently completed a year of postgraduate study at the Agricultural Economics Research Institute, Oxford, has joined the staff of the Agricultural Economics Division, Department of Agriculture, Ottawa.

Andrew Stewart, who has occupied the post of Professor of Agricultural Economics at the University of Alberta and has also been Dean of the School of Business Administration, has recently been made President of the University.

O. C. Stine has returned to the Bureau of Agricultural Economics after having spent four months in Japan with the Natural Resources Section of the Supreme Commander for Allied Powers.

George H. Walter has transferred from the Bureau of Agricultural Economics to the Production Guides Division of the Production and Marketing Administration.

Herbert M. Walters recently transferred from the Portland, Oregon, office of the Bureau of Agricultural Economics to the Dairy Division in the Washington office.

Clyde V. Willis has transferred from the Division of Field Crop Statistics, Bureau of Agricultural Economics, to the Production and Marketing Administration.

G. B. Wood, Professor of Agricultural Economics, Purdue University, has been appointed Chairman of the Department of Agricultural Economics, Oregon State College, effective July 1, 1951.

THE JOURNAL OF POLITICAL ECONOMY

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Department of Economics of the University of Chicago

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Book Reviews

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